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"Labor Omnia Vincit."

THE NATURALIST,

AND FIELD CLUB JOURNAL.

With which is Incorporated the Entomologists' Journal.

Edited by
C. S. Kothwick (Botany)
G. H. Locke (Zoology)

VOL. III.

From May, 1866, to May, 1867.

LONDON:

Simpkin, Marshall, & Co., Stationers' Hall Court.

Huddersfield: Geo. Tindall, 12, New-Street.

1867.

REQUIESCAT IN PACE.

The *Naturalist* is dead. This issue is our last, at any rate for the present. We regret extremely the stern necessity which will thus sever the pleasant and agreeable connection that has existed during the past three years between ourselves and our contributors. We heartily thank them for their support and contributions, and shall be glad to hear from them personally at any time, although our official connection with them now ceases. They have helped us in a good work, and kept us well supplied with useful and interesting information for the pages of our serial during the few years of its existence, and the editors will always have one thing to look back upon with pleasure: that short as have been their labours, they have been the means of publishing many useful and interesting facts which but for the existence of the *Naturalist* would probably never have been recorded. Mr. Baker's Review of the British Roses,—M. Déséglise's Observations on the Classification of the Genus *Rosa*,—Prof. Crèpin's Considerations on Species,—Mr. Gibb's Mustelidæ of Northumberland,—Mr. Miall's Botany of Malham,—Mr. James Britten's Spontaneous Exotics, and Flora of High Wycombe,—Mr. Saxby's Catalogue of the Birds of Shetland,—Mr. Gissing's Flora of Wakefield,—Mr Wilson's Notes on *Hypnum aduncum* and its Allies,—Prof. Chas. Martins' Vegetation of Spitzbergen, the Alps and the Pyrenees,—and a host of others, are papers which have furnished real knowledge to the scientific world, and of which the editors of the *Naturalist* may well feel proud: whilst Mr. Gunn's Ornithological and Entomological Papers,—Mr. Inchbald's Papers on Gall-insects, and many others of a similar character, cannot fail to have been read with interest and instruction by all who have perused them. So far then as their own labours are concerned, the editors have no cause to be ashamed of their three volumes, but rather to congratulate themselves that they have been the humble means of contributing useful matter to the already existing stock of Natural History knowledge. But now these pleasant reminiscences will be all that is left for them, for the plain truth is that the circulation is not sufficient to pay the expenses of its production. We are unable to account for this, unless it be that for the limited circulation which a journal of this class must of necessity have, the

price at which it was issued was too small by one half. However, we acted as we thought for the best, in order to place our publication within the reach of all classes of Naturalists—experience, however, has shown us our error; should we ever attempt a resuscitation of the *Naturalist*, we hope to profit by that experience.

In conclusion, we must again beg to thank, most heartily, all our contributors and subscribers for their disinterested support and countenance, and hope that they will speedily find other means of communicating their observations to the scientific world. Should any other gentlemen, or society, undertake to issue a similar journal, we will promise them our most cordial support, and will also endeavour to obtain for them that of our valued contributors. We have worked *con amore*, and without desire for gain; indeed, it was understood that all profits that might arise should not find their way into the editors' pockets, but should be devoted exclusively to increasing the value and interest of the magazine; and on these grounds we hope that our efforts to advance the study of Natural History will receive their due reward from the scientific public.

Huddersfield, 26th April, 1867.

INDEX.

ORIGINAL ARTICLES.

Britten, Jas. : Flora of High Wycombe 15, 33, 47, 69, 73, 116, 121, 139
Briggs, T. R. A. : Naturalists' Calendar for 1866, at Plymouth 27, 46, 85
——————— Notes on Botany of Plym Valley and neighbourhood 90
Burgess, N. : The Pigment Cells of Plants 53

Foxton-Firby, E. : The Pendulous Nest of a Social Tree Wasp 81
——————— The Nature and Colours of Blood 100
——————— A Fascicle of Notes on Field Botany 149

Gunn, T. E. : Notes on Norfolk Entomology 9, 109
——————— : ,, ,, Ornithology 82, 84, 89, 108, 160, 173

Hobkirk, C. P. : Notes on *Cratægus Oxyacanthoides* 12
——————— ,, Some forms of *Cratægus* 62, 78
——————— On M. Déséglise's Revision of the Section *Tormentosæ* of the Genus *Rosa* 127, 143

Morris, Rev. F. O. : The Food of Birds 132
Munby, G. : Wild Plants at Woodgreen, London, N. 179

Nelson, W. : List of *Limnæidæ* of Birmingham 26

Ponton, T. G. : On the Origin of the Domestic Cat 137

Roberts, Geo. : The Ploughman's Birds 41

Stevenson, Hy. Alleged Rare Birds in Norfolk 45
Sim, John : Perth Plants 94
Saxby, Henry L. : Notes on the Nests and Eggs of British Birds 166

Ullyett, Hy. : Habits of the Owl in Confinement 25

White, Dr. F. B. : Vesuvius 29
——————— Visit to the Jardin, Mont Blanc 92

A Botanical Visit to Delamere Forest 131
A Day at Clifton 55

Botany at Newtown, Montgomeryshire 159

Exchange 24, 100

OBSERVATIONS.

Britten, Jas. : *Geranium Striatum* 115
Briggs, T. R. A. : Scarcity of Butterflies in 1866 99
Blackburn, John : Singular Instincts of Birds 40
——————— Mollusca of Knaresborough 98
——————— *Helix lapicida* 98
Burrell, Jno. : Rare Birds in Leadenhall Market 184
——————— Grey Parrot 184

Gunn, T. E. : Malformed Kitten 88
——————— Waxwings in Suffolk and Norfolk 136

Hobkirk, C. P. : *Rosa Cuspidata, Bieb.*, in Britain 87
——————— *Sanguisorba Canadensis* in Perthshire 88

Jellie, Miss : Molluscs of Bristol and neighbourhood 148

Melville, J. C. : *Geranim Striatum* wild in Cornwall 99

Parke, G. H. : Note on Distribution of *Helix lapicida* 88

Sharpe, R. B. : *Hydrochelidon nigra* 39
——— ——— Food of the Kestrel 39
——— ——— *Parus Ceruleus* 39
Saxby, Hy. L. : *Cidaris papillata* in the Stomach of a Cod 99

Tindall, J. : Pied Oystercatcher at Huddersfield 97

Waite, Fred : The Black Redstart 136
Wilkinson, F. : *V. Urtica* on Christmas-Day 148

List of Plants collected in Cornwall, Aug. 1866 115

M. Jordan's New Work 116

REPORTS OF SOCIETIES.

Amateur Botanists' 19
High Wycombe Natural History Society 97, 115, 148, 183
International Botanical Congress 20
Leeds Naturalists' Society 87
Manchester Geological Society 38
———— Literary and Philosophical Society 148
Norwich Naturalists' Society 20, 67, 96, 136
Perthshire Natural Science Society 184
Todmorden Botanical Society 66
Quekett Microscopical Club 19, 38, 68, 86, 95, 114, 183

NEWS.

Flies in the Ear 24
Peacock Butterfly 136

NOTES AND QUERIES.

New British Morel 40

POETRY.

Water Weeds : H. Williamson 40

THE NATURALIST.

"Labor Omnia Vincit."

Reports of Societies.

TODMORDEN BOTANICAL SOCIETY.

Intermediate meeting, 19th March. At this meeting Mr. John Nowell, Vice-President, read the following paper :—

NOTES ON SOME RARE MOSSES AT TODMORDEN.

In Wilson's *Bryologia Britannica* there are four hundred and forty-four species of mosses described as having been found in Britain ; and since then a considerable number have been added to the list, so that we may now venture to put them down at nearly five hundred species. Of that number I think about two hundred species have been met with within six or seven miles round Todmorden, within the last thirty years; probably we may have a greater number of species in this radius than most other districts of the same extent. This, no doubt is owing partly to the great diversity of surface, and to the different degrees of altitude, affording a variety of aspects and different degrees of light and shade.

But, I am sorry to say that a considerable number of species have disappeared from the neighbourhood within the last ten or fifteen years from some cause or other, and there are some that were pretty common, which are seldom met with now, and are not so fine and healthy as they were formerly.

However, we have a goodly number of species that are not frequently met with in some other districts of the same extent. Of these I will mention a few. *Anodus Donianus* of Br. and Sch., one of the smallest of mosses, has

only been found in a very few places in Britain, and we have two stations for it in this district; both of them near Heptonstall. We have another little known species, *Leskea Sprucei*, Bruch. Mr, Spruce first gathered this in Teesdale, about the year 1842, very sparingly; and about the year 1853, I had the good fortune to meet with it on shady rocks by the side of a waterfall in Green's Clough, and in a similar situation in Dules' Gate; and also under shady rocks in Shedden Clough; all very sparingly. I have since met with it at Chee Tor, in Derbyshire; and also in Gordale, Malham, and in Helk's wood, Ingleton; Mr. Baker found a little of it on rocks by the side of the Tees, near Egleston, in 1856; these I believe are the only known places where this very delicate and beautiful moss has been found in Britain.

I may also mention the beautiful and elegant *Schistostega osmundacea*, which has its northern limit (in Britain) in this neighbourhood; it has been found in a number of other places in England, but no further north than here.

The little known *Atrichum laxifolium*, Wils. MS.; *Atrichum crispum*, Sullivant, was first brought into notice in this neighbourhood, either as a curious form of *Atrichum undulatum*, or a new species; but not having been found in fruit here, it was not much noticed, until a Mr. James, of New Jersey, North America, sent it in fruit unnamed, along with other plants to Mr. Wilson, having met with it in fruit in New Jersey; and Mr. Wilson made it out to be identical with our plant. Only the male plant, has yet been found in Britain. Dr. Schimper, says, that it is new to Europe. It is found in nearly all the rocky moorland streams in this district, and it has also been found in similar places in Saddleworth, but I have not heard of its being found further north than here.

Mnium subglobosum, Br., & Sch., was first brought under notice in this neighbourhood as being a distinct species, before having been overlooked as only a variety of *Mnium punctatum*; it has been found in a few places in other parts of the country, but nowhere in such abundance and perfection as in this neighbourhood. I believe it is unknown on the continent, but is said to have been found by Drummond in North America, who named it *Mnium pseudopunctatum*.

We have *Hypnum ochraceum*, of Turner, which had not been much noticed until recently, only as a form of *Hypnum palustre*, but it is quite distinct from that species. I think it is not found on the continent, as Dr. Schimper had not seen it growing until he came to Todmorden; this I believe

is found in greater abundance and perfection in this district than in any other place where it has been found.

The paper was illustrated by numerous beautifully mounted specimens of some of the rarer species of mosses.—The president remarked, with regard to the disappearance of mosses, that the same circumstances had happened to several beautiful *Hepaticæ*, and as no effect took place without an adequate cause, it would be interesting to ascertain what had caused the disappearance of these beautiful plants—whether it arose from the super-abundance of smoke, superior drainage, or the wanton destruction of the timber trees of this district. A spirited discussion ensued, in which Messrs. Nowell, J. Haworth, T. Stansfield, W. Patman, T. Aitkin, W. Sutcliffe, and other members took part. All agreed in condemning in the most unmeasured terms the unwarrantable destruction of the trees of the neighbourhood, and ascribing to this the principal cause of the disappearance of the plants in question. The president stated that at the next intermediate meeting, April 23rd, the hon. sec. (Mr. T. Stansfield), would read a paper "on the Ferns of the District."

Meeting April 2nd. The President in the chair. This was principally a business meeting.

On the table were several interesting specimens both of flowering plants and ferns; amongst the former—*Helleborus niger, and H. atrorubens, Narcissus minor, Daviesia ulicina,* the handsome *Imantophyllum miniatum, Monochætum ensiferum, Habrothamnus fascicularis,* several species of *Kennedya, Brachycoma, Pultenia, &c., &c.* Of ferns, the most interesting were a curiously depauperated form of *Pteris aquilina,* and several fronds of a well-marked condition of *Blechnum spicant,* v. *heterophyllum*; the former of these was a curious example of filical morphology. The pinnæ were almost entirely wanting, the rachides being furnished with numerous short bluntish nodes, and presenting more the appearance of some of the rare and beautiful *Gleichenias,* than what it really is—a form of one of the very commonest of British Ferns. The *Blechnum spicant heterophyllum,* alluded to was gathered by Messrs. Nowell and Patman in Staups clough, on last Saturday's excursion; this is the second plant of this rare fern collected in the neighbourhood of Hebden-bridge.

Reports of Societies.

MANCHESTER LITERARY & PHILOSOPHICAL SOCIETY.

At the last ordinary meeting, R. Angus Smith,, Ph.D., F.R.S., &c., president, was in the chair. A notice was given of

THE HUMMING BIRD HAWKMOTH.

Mr. Binney, F.R.S., said that he had observed the humming bird hawkmoth, *Macroglossa Stellatarum*, during the past summer in far greater abundance than he ever remembered having seen it before. In the month of August he saw upwards of a hundred of them in a garden near Grimsby where they appeared to prefer the common lavender flower for food to any other in the place. Again in the first week of October, he observed upwards of twenty in a garden at Douglas, in the Isle of Man. Here they preferred to feed on heliotrope before other flowers. It was very interesting to watch these moths hovering over the flowers, and whilst on the wing extracting their food. They appeared very wary and shy after any attempt being made to capture them, but if you merely observed without making any attempt to molest them they would continue their feeding in confidence, and you could watch them at your leisure. So a great deal of the shyness and caution for which the little creature has got the credit is probably more due to the persevering efforts of its enemies to capture it than any natural fear of man.

In the microscopical and natural history sections, A. G. Latham, Esq., president of the sections, was in the chair. The following objects were exhibited :—Eight mounted specimens of hair of Australian animals for the cabinet ; one of them a species of *Phascogale*, very remarkable.—Mr. Latham. A large collection of rare beetles from Ceylon, recently presented to the Natural History Society, by — Braybrooke, Esq.,—Mr. Latham. Many specimens of remarkable foraminifera from Dog's Bay.—Mr. Linton. A sample of the guano lately imported from Malden Island in the Pacific, for distribution among the members.—Mr. Latham. Dr. Alcock showed mounted specimens of embryonic shells of mollusca, including fifty species collected by him from Dog's Bay sand, and named by J. Gwyn Jeffreys, Esq. He said he had in a former communication described the peculiar characters of *Anomia* in the young state, and shells of this kind are abundant in the sand. Pectens are also common.

Observations.

Rare Eggs.—Few Oologists, I fear will feel much interested in Mr. Sharpe's notes on this subject without further testimony ;* first as to their being genuine specimens, and, what is far more improbable, as to their capture in Norfolk. The first bird in Mr. Sharpe's list, *Coccyzus Americanus*, is such a rarity in the British Isles, that it appears scarcely possible that a single pair should arrive here, and be allowed to remain unmolested for the purpose of nidification ; at any rate we want greater proof of their having done so, before the statement will be credited by practical Ornithologists. There is just a possibility of the eggs of *Turdus saxatilis*, being found in this country, but I have seen no evidence to prove it ; certainly Mr. Sharpe gives none. With regard to the others Mr. Sharpe must consider himself a fortunate collector to obtain *genuine* British specimens of the eggs of *Ardea minuta*, and *Oriolus galbula*.—HENRY REEKS, Manor House, Thruxton, April 21*st*, 1866.

Yellow Billed Cuckoo.—According to the Rev. F. O. Morris, this bird has only twice been observed in Britain,—once in Wales, and once in Cornwall. Is R. B. Sharpe, quite sure that his eggs were found in Norfolk ? W. R. TATE, Grove Place, Denmark Hill, London.

* *Naturalist* Vol. ii. p. 366.

Daphne Mezereum, in Bucks. Mr. F. H. Hanbury, writes—in reference to this plant :—" I had the pleasure, in company with Mr. Lawson last Friday week, (6th April), of finding *Daphne Mezereum*, in two localities, near High Wycombe, * Bucks. They were indicated to us, I should state, by Messrs. Britten and Trimen, but the former had not found it in them this season. The plants were very rare—in both places together we did not see over a dozen shrubs, although we hunted well."

News.

Leucojum vernum, Linn. J. C. Mansel, Esq., of Longthorns, writes to the Journal of Botany", (p. 123) that he has visited Bridport and is able to confirm Mr. Hardy's suggestion as to *Leucojum vernum* being probably a British plant. He found it growing in abundance for a distance of more than a quarter of a mile on the banks and sides of a thick hedge-row in a remote valley, in which there are no houses.

Dr. Lindley's Herbarium.—With the exception of the *Orchidaceæ*, which are now in the Kew herbarium, the University of Cambridge has purchased the whole of the herbarium of the late Dr. Lindley for the sum of £300.

A strange position for a Bird's Nest.—On the 14th of last month, a woman named Eastbury, was missed from her home near Blocksley, in Warwickshire, and although the most diligent search was made for her by the police and her friends, no trace could be found of her whereabouts. On Sunday last, a man named Mark Spires, was passing along the warren, near Dovedale, on Lord Northwick's estate, when his attention was drawn to the cackling of a moorhen on the side of a small ornamental lake, nearly surrounded by laurels and shrubs. He went to the place to see what was the matter, and was horrified on finding the dead body of the missing woman in a highly decomposed state. The moorhen, which had arrested his attention in the first instance, had built its nest on the bosom of the corpse, and it contained seven eggs in a forward state for hatching. An inquest was held upon the corpse, when the coroner's jury returned a verdict of " Found drowned."

Chinese Mode of Taking Honey. — Mr. Fortune, the well-known English botanist, thus describes the mode adopted by the Chinese for taking honey from bee-hives. He says : "The Chinese hive is a very rude affair, and looks very different from what we are accustomed to use in England ; yet, I suspect, were the bees consulted in this matter, they would prefer the Chinese to ours. It consists of a rough box, sometimes square and sometimes cylindrical, with a moveable top and bottom. When the bees are put into a hive of this description it is rarely placed on or near the ground, as with us, but it is raised eight or ten feet, and generally fixed upon a projecting roof of a house or outbuilding. No doubt the Chinese have remarked the partiality the insects have for places of this kind, when they choose quarters for themselves, and have taken a lesson from this circumstance. My landlord, who had a number of hives, having determined one day to take some honey from two of them, a half-witted priest, who was famous for his powers in such matters, was sent for to perform the operation. This man, in addition to his priestly duties, had charge of the buffaloes which were kept on the farm attached to the temple. He came round in high glee, evidently considering his qualification of no ordinary kind for the operation he was about to perform. Curious to witness his method of proceeding with the business, I left some work with which I was busy, and followed him and the other priests and servants of the establishment to the place where the hives were fixed. The form of the hive in this instance was cylindrical ; each was about three feet in length, and rather wider at the bottom than at the top. When we reached the

* *Naturalist* Vol. ii. 16, 312.

spot where the hives were placed, our operator jumped upon a table there for the purpose, and gently lifted down one of the hives and placed it on its side on the table. He then took the moveable top off, and the honeycomb, with which the hive was quite full, was exposed to our view. In the meantime an old priest having brought a large basin, and everything being ready, our friend commenced to cut out the honeycomb with a knife apparently made for the purpose, and having the handle almost at right angles with the blade. Having taken out about one-third of the contents of the hive, the top was put on again, and the hive elevated to its former position. The same operation was repeated with the second hive, and in a manner quite satisfactory. 'But,' it may be asked, 'where were the bees at this time?' and that is the most curious part of my story. They had not been killed by the fumes of brimstone, for it is contrary to the doctrine of the Buddhist creed to take animal life ; nor had they been stupified with fungus, which is sometimes done at home ; but they were flying about over our heads in great numbers, and yet, although we were not protected in the slightest degree, not one of us was stung ; and this was the more remarkable as the bodies of the operator and servants were completely naked from the middle upwards. The charm was a simple one ; it lay in a few dry stems and leaves of a species of *Artemisia* (wormwood), which grows wild on these hills, and which is largely used to drive that pest, the mosquito, out of the dwellings of the people. This plant is cut early in the summer, sun-dried, then twisted into bands, and it is ready for use. At the commencement of the operation which I am describing, one of the substances was ignited, and kept burning slowly as the work went on. The poor bees did not seem to know what to make of it. They were perfectly good-tempered, and kept hovering about our heads, but apparently incapable of doing us the slightest injury. When the hives were properly fixed the charm was put out, and my host and his servants carried off the honey in triumph."—*Manchester Examiner.*

Original Articles.

THE ALPACAS AT METHLEY PARK.

By Geo. Roberts.

Methley is situate on a small, fertile plain, enclosed by the rivers Calder and Aire, which join about a mile below at Castleford. The hall, the property of the Saville family, is now the seat of Titus Salt, Esq., well known in England as the establisher of the Alpaca cloth manufacture, and as the owner of one of the largest and handsomest manufactories in the world. The village, being within my rambling limits, I have made several visits to the Park to watch the Alpacas kept there. Perhaps, a few notes on their habits, &c, which I have gleaned from personal observation, and from the person who has the care of them may be new to the readers of the *Naturalist.*

The herd at present only consists of three, one female and two males, all bred in this country by Mr. Salt. The female will now be about eleven years old, and one of the males, the youngest, will be nearly two years old.

The colour of the wool of the female is black and white; that of the males is black, slightly tinged with chocolate. This wool, is long, soft and elastic, and is shorn in the middle of summer.

The figure of the alpaca is very singular. In height and length it exceeds the sheep; the neck is long and curved exactly like that of the camel; the legs and body are slender, but do not appear so when the wool is long; the eyes are dark, full and languid, and short wool falls like a veil over them. The incisor teeth are somewhat narrow, and are inclined forwards; in the old female, they have become quite yellow; the upper lip is divided vertically almost to the nostrils, the two halves being moveable; the ears taper to a point, and in the young ones, short curly wool covers them. The front divisions of the foot are very hard, and somewhat arched; the sole of the foot is cushioned. Wool covers the legs down to the feet, and when they are grazing the wool of the neck sweeps the ground. The length of the neck enables them to raise the head to a great height; they have no horns.

When they move about in the paddock in which they pasture, the old female generally walks in advance of the others. They are not wild; when a stranger approaches them they turn and walks towards him in a threatening manner, and prick their ears, but, like all the camel tribe, they are quite inoffensive. They often rub against trees or palings, and roll in dry dusty places, but the herdsman informed me they had no ticks. I was desirous of information on this point because I imagined that they might have parasites peculiar to them, which would consequently be as rare in this country as the Llamas themselves. No special disease has cut off those that have died, their death seems to have resulted from unknown and not uniform causes. In their native country they are subject to a disease, allied to the scab, called by the Peruvians *carachen*, which is contagious. Rain is very hurtful to them, they also dislike wind, but are not affected by cold; they delight to nip the green buds from the trees and hedges in spring. The males sometimes quarrel; when fighting with each other they bite and use their feet to strike or trample; they appear to have no notion of butting. When teazed they spit after the manner of the cat. This act of casting out saliva is mentioned by the old Spanish writers, who observed them in Peru, and who first described them. Their bleat is like that of the goat; when one finds itself isolated from its companions, this bleat is peculiarly doleful and indicative of anxiety; they have various ways of expressing themselves by vocal sounds, understood by themselves only. In winter they are kept in a little shed which opens to the south, and are fed with hay, beans, or oats. They have no offensive odour.

In the little shaded paddock adjoining the outbuildings there is quite a heterogeneous congregration of animals. Horses, cows, sheep, pigs, turkeys, geese, hens, a pair of white haired, spiral-horned Toronto goats, and the lapacas, all run and feed in amity together. The alpacas however, always keep together in one company, never associating closely with the goats or sheep.

The alpaca as most Naturalists will know, is a member of the genus Lama *Cuv.* and is an inhabitant of South America. The genus consists of four species : *Lama glauca*, the Llama, *L. guanicus*, the Guanica, *L. vicugna* the Vicuna, and *L. pacos*, the Alpaca. The llama is used in the Peruvian mountains, where it occurs most numerously, as a beast of burden, carrying from place to place the tents and utensils of the hunters and shepherds. It was introduced into Europe about the middle of the 16th century. The alpaca is tamed and reared by the Peruvians, for the sake of its fleece, the wool being much finer and more valuable than that of the llama. I have not been able to ascertain when the animal was brought to England, but the manufacture of alpaca cloth was begun in 1843. The vicuna dwells in the wildest and loneliest parts of the Andes, thirteen or fourteen thousand feet above the level of the sea, and has never yet been tamed. Its wool is very highly prized, being more elastic and beautiful than that of the alpaca. Of the four the guanaca is perhaps the commonest, and is the least valued, neither its wool nor its flesh being of good quality. The name " camel sheep" is applied by Europeans to all these species in Peru. In England the alpacas are sometimes called pacoes. Paco is the Indian name.

In addition to the alpacas, the cows, goats, and other domestic animals, kept at Methley Hall, by Mr. Salt, are well worthy of inspection. Mr. Shillito, the herdsman, will go round the premises with respectable and civil visitors. In one snug warm outhouse that I was shown there was an interesting little family living together apparently happily—a diminutive French cow, a calf, her offspring, and an orphan lamb. This cow I was informed had, on several other occasions, fulfilled the motherly office of bringing up together a casual lamb, and her own calf.

I should not close this little paper without remarking that any who should happen to visit Methley Park, should at the same time visit the Church. It contains two ancient and elaborately finished tombs of the Waterton family ; a monument with recumbent figure and dog, over Lord Wellis, who fell at Towton ; and other objects of great antiquarian interest. An elderly widow lives close by, and is always at hand to open the doors.

Lofthouse, March, 1866.

Original Articles.

NOTES ON NORFOLK ENTOMOLOGY—*LEPIDOPTERA*.

By T. E. Gunn.

Part VIII.

Pyralides.

Odontia dentalis. Rare. Ranworth, Mr. W. Winter.

Pyralis fimbrialis. Rare. Ranworth, Mr. W. Winter.

P. farinalis. Common and distributed. Sometimes abundant.

P. glaucinalis. Rare at Cawston, Rev. T. H. Marsh. Neatishead, Mr. Sayer; around Norwich, Mr. R. Gunn.

Aglossa penguinalis. Common everywhere.

A. cuprealis. Ranworth Fen, Mr. Winter.

Cledeobia angustalis. Ranworth Fen, Mr. Winter.

Pyrausta punicealis. Local. Not uncommon. Cawston, Ranworth, Horsford.

P. purpuralis. Abundant at Cawston, Rev. T. H. Marsh; also taken at Ranworth, Mr. W. Winter.

P. ostrinalis. Local. I discovered this species pretty abundant during June and July 1865, on Mousehold heath, near Norwich.

Rhodaria sanguinalis. Rare. Cawston, Rev. T. H. Marsh; Ranworth Fen, Mr. Winter.

Herbula cespitalis. Rare. Cawston, Rev. T. H. Marsh.

Ennychia cingulalis. Ranworth Fen, Mr. W. Winter.

E. anguinalis. Ranworth Fen, Mr. W. Winter.

Stenia punctalis. Ranworth Fen, Mr. W. Winter.

Cataclysta lemnalis. Not uncommon. Cawston, Ranworth, Horning.

Puraponyx stratiotalis. Not uncommon. Cawston, Ranworth, Horning.

Hydrocampa Nymphæalis. Common and distributed.

H. stagnalis. Common and distributed.

Botys flavalis. Rare. Cawston, Rev. T. H. Marsh.

B. hyalinalis. Ranworth, Horning, Aldeby, Mr. Winter.

B. verticalis. Common and distributed.

B. fuscalis. Ranworth, &c. Mr. Winter.

B. ascinalis. Ranworth, &c. Mr. Winter.

B. urticalis. Abundant on nettles.

Ebulea crocealis. Not uncommon and distributed.

E. verbasalis. Rare at Cawston, Rev. T. H. Marsh, Ranworth, Aldeby, &c., Mr. Winter.

E. sambucalis. Rare at Cawston, Rev. T. H. Marsh; Ranworth, &c., Mr. Winter.

Pionea forficalis. Common and distributed; sometimes abundant.

P. stramentalis. Not uncommon and distributed.

Spilodes cinctalis. Rare. Cawston, Rev. T. H. Marsh. The Fens, Mr. Winter.

Scopula lutealis. Rare at Cawston, Rev. T. H. Marsh. I took a few examples at Ketteringham, in 1865.

S. olivalis. Common and distributed.

S. prunalis. Common and distributed.

S. ferrugalis. Rare. Cromer, Rev. T. H. Marsh; The Fens, Mr. Winter.

Stenopteryx hybridalis. Common. Cromer, Rev. T. A. Marsh.

Eudorea ambigualis. Common. Cawston, Rev. T. H. Marsh.

E. cembralis. Rare. Foulsham, Revs. T. H. Marsh, and G. Norris.

E. pyralalis. Common and distributed.

E. cratægalis. Not uncommon. Cawston, Rev. T. H. Marsh.

E. phœoleucalis. Local. Horsford in 1865. Mr. Sayer. I have examples in my collection taken as above.

E. truncicolalis. Not uncommon. Cawston, Horsford, &c.

E. atomalis. Rare. Cawston, Rev. T. H. Marsh.

E. gracilalis. Not uncommon. Cawston, Rev. T. H. Marsh.

E. paralis. Rare. Cawston, Rev. T. H. Marsh.

Crambites.

Platytes cerussellus. Ranworth Fern, Mr. Winter.

Crambus falsellus. Not uncommon. Cawston, Ranworth.

C. pratellus. Common everywhere.

C. dumetellus. Rare. Cawston, Rev. T. H. Marsh.

C. hamellus. Rare. Cawston, Rev. T. H. Marsh.

C. pascuellus. Common everywhere.

C. uliginosellus. Ranworth, Mr. Winter.

C. pinctellus. Not uncommon. Cawston and Ranworth Fen. I have taken it around Norwich.

C. latistriellus. Rare at Cawston, Rev. T. H. Marsh.

C. perlellus. Not uncommon, Cawston.

C. selasellus. Not uncommon, Cawston.

C. tristellus. Common everywhere.

C. inguinatellus. Common. Cawston.

C. geniculellus. Common. Cawston.

C. *culmellus.* Common and distributed.

C. hortuellus. Common and distributed.

C. palludellus. Ranworth, Mr. Winter.

Chilo cicatricellus. Ranworth, Mr. Winter.

C. phragmitellus. Ranworth, Mr. Winter.

Schœnobius forficellus. Ranworth, Mr. Winter.

S. mucronellus. Rare. Cawston, Rev. T. H. Marsh. Ranworth Fen, Mr. Winter.

S. gigantellus. Rare. Cawston. Rev. T. H. Marsh. Ranworth Fen, Mr. Winter.

Ilethyia carnella. Ranworth, Mr. Winter.

Homœosoma nimbella. Ranworth, Mr. Winter.

Ephestia pinguedinella. Rare. Cawston, Rev. T. H. Marsh.

Nephopteryx annustella. Rare. Cawston, Rev. T. H. Marsh, Ranworth Fen, Mr. Winter.

Phycis ornatella. Ranworth, &c., Mr. Winter.

P. abietella. Rare. Cawston, Rev. T. H. Marsh.

Pempelia palumbella. Abundant at Cawston.

Rodophœa formosella. Rare. Cawston, Rev. T. H. Marsh.

R. consociella. Rare. Cawston, Rev. T. H. Marsh.

R. advenella. Rare. Cawston, Rev. T. H. Marsh.

R. suavella. Not uncommon. Cawston.

R. tumidella. Rare. Cawston, Rev. T. H. Marsh.

Oncocera ahenella Rare. Cawston, Rev. T. H. Marsh.

Melia sociella. Not uncommon. Cawston.

Norwich, February, 1866.

NOTES ON BRITISH PLANTS.

No. I.—Cratægus Oxyacanthoides, *Thuil. and* C. monogyna, *Jacq.*

By C. P. Hobkirk.

The two forms of *Cratægus*, have for a long time been the subject of observations, which in some quarters have been renewed year by year, and it is with a view of calling the attention of our English local botanists to their distribution in this country that I have been led to put together these few notes on the subject.

In many works on English botany the common hawthorn is generally given as *C. oxyacantha*, L. under which term are united two very distinct forms, viz. :—*C. oxyacanthoides*, Thuil. and *C. monogyna*, Jacq.

Many continental authors as Koch, Fries, Döll, Kirschleger, de Brebisson, Crépin, Des Moulins, Grenier, Boreau &c., are in favour of considering the two forms as specifically distinct, whilst others, as Cosson and Germain, Moris, Caruel, Wesmael &c., and the greater proportion of our English botanists rank them merely as varieties of the same species.

Prof. Babington (Manual ed 5. p. 116,) gives them as varieties, regarding *C. oxyacantha*, as the typical form apparently, and stating *β. monogyna*, to be " the more common form."

The following diagnosis of the two forms is translated from Boreau's " Flore du Centre" (vol. ii., p. 234) :—

" *C. oxyacanthoides*, Thuill, ! flor. par. p. 245. *C. oxyacantha*, Jacq. non L.—Tufted shrub, leaves oboval ordinarily with three *not* deeply cut inciso-dentate lobes, glabrous, of a deep shining green colour, with converging nerves ; corymbs lateral with glabrous peduncles, calyx teeth oval ; styles two ; fruit red, enclosing two nuts. Flowers white ; beginning of May."

" *C. monogyna*, Jacq., *C. oxyacantha*, L., sp. 683. A much branched shrub, often passing into an arborescent form, leaves cuneiform oboval, deeply divided into three or five inciso-dentate lobes, of a light green colour ; with both the nerves and lobes divergent ; corymbs lateral, generally pubescent ; calyx teeth lanceolate ; for the most part the flowers have only one style ; fruit red, rarely yellow, with one nut. Flowers white, somewhat rarely rose-coloured."

M. Boreau, further remarks, that " besides the very important character of the direction of the nerves, the latter species is easily distinguished from the preceding, by its smaller and less shining leaves, which are more deeply

cut, and its smaller fruit, and flowers, the latter opening fifteen days later" [than *C. oxyacanthoides.*]

This character of the later opening of the flowers, is further insisted on as a most important " biological difference", by Prof. Crépin (Bulletins de la Societé Royale de Botanique de la Belgique vol. ii. p. 262 et seq.) He says: —" I have recognised two forms apparently well distinguished by several organic characters, and above all by a biological difference, which certainly should cause some hesitation with those who are inclined towards a reduction of species. In the Famenne I have always remarked that *C. oxyacantha*, had already flowered and commenced leafing, when *C. monogyna*, had scarcely opened either flower or leaf-buds, and that, in the same locality and soil, and under the same exposure.....The flowering of *C. monogyna* is from eight to twelve days later." Prof. Babington, (Manual) takes no note whatever of this difference in time of flowering, nor yet of the different direction of the veins of the leaves, whilst Hooker and Arnott (British Flora, Ed. 8. p. 140.) remark simply that the *species* is " variable in the form of its leaves, in the downiness of the calyx, and in the colour of the flower and fruit," thus evidently ignoring the existence of these two distinct forms.

Alexander Irvine (British Plants, p. 613, 1858,) notices the *later* flowering of his var. *β. oxyacanthoides*, which is evidently a mistake, as by his description, this is Thuillier's plant which other authors state to be the earlier one in flower. His variety *a. vulgaris*, is evidently *C. monogyna*, Jacq., though he makes no mention of the direction of the nerves of the leaf. This seems a very marked character, if persistent, as it gives quite a different form to the leaf, and it should be carefully examined, in order to ascertain if the converging nerves are always present along with glabrous peduncles, oval calyx teeth, and a double nutted fruit, whilst diverging nerves and lobes are persistent with the opposite characters of *monogyna.*

In the new Edition of " English Botany" edited by Mr. Boswell-Syme, are two excellent figures of these forms, but in the diagram of the leaf of *C. oxyacanthoides* f. 479, the principal nerves of the lower lobes are made somewhat divergent at their tips, which is scarcely the case in a specimen I have of this plant, gathered by Mr. Syme himself, at Hampstead, and kindly sent me by Mr. J. G. Baker, of the Kew Herbarium : and further Mr. Syme makes no mention of the direction of the nerves in his description of either plant merely stating that the leaves of *C. oxyacanthoides*, have the " margins slightly convex from the base to the apex of the first lobe" (vol. iii. p. 236); and of *C. monogyna*,

he states " margins straight or concave from the base to the apex of the first lobe" (p. 237.) He further states :—" it appears to me that this shrub, [*C. monogyna*] is entitled to be considered distinct from the preceding, though intermediate states occur, which render it difficult to agree with the great majority of foreign authors who consider it a distinct species. It blooms about a fortnight later than the last, when they grow in the same locality." In this work they are ranked, as sub-species. Mr. Bentham in his " Handbook of the British Flora," calls the Common Hawthorn, *C. oxyacantha*, and totally ignores the existence of any subdivision.

Whether these two forms should, or should not, be considered distinct species, is not for me to say, that must be left to far higher authorities and better judges than I can pretend to be, but one thing is certain, apparently, viz.,—that *two distinct forms* do occur, the one flowering from twelve to fifteen days earlier than the other in the same localities, therefore, they should on no account be ignored. Now, that the shrubs in question are all in flower, it will be a good opportunity for all our local botanists to give their attention to them. They should endeavour to ascertain which of the two forms is the more common in their neighbourhood, or if only one occurs ; and also note as closely as they can the times of flowering. Another point worthy of attention will be whether their plants agree in *every* character with Boreau's diagnosis as given above, or whether there are intermediate forms, connecting the two, and what are the gradations. If all our local botanists would take the trouble to do this, and make exact notes of their observations, a collection of facts might be obtained which would perhaps lead to some settlement of the question of distinct species. Such observations might be communicated to the editors of the *Naturalist*, and would be of increased value if accompanied by specimens ; or they might be made direct to myself, in which case I would revise the whole, and give a summary in the *Naturalist* as early as possible.

I may state that hitherto I have only observed one form in this neighbourhood, *C. monogyna*, but it is possible that further search this season may detect the other form.

Huddersfield, May 1866.

A FLORA OF HIGH WYCOMBE.

By James Britten.

(Continued from vol. ii., page 357.)

Order XXII.—OXALIDACEÆ.

Oxalis. *Linn.* Wood Sorrel.

O. Acetosella, L. Bab. 68. Woods and hedgebanks.

Note.—This occasionally produces petal-less flowers in the autumn.

Division II.—CALYCIFLORÆ.

Order XXIII.—CELASTRACEÆ.

Euonymus. *Linn.* Spindle-tree.

E. europæus, L. Bab. 69. Woods and hedges.

Order XXIV.—RHAMNACEÆ.

Rhamnus. *Linn.* Buckthorn.

R. catharticus, L. Bab. 70. Hedges, not uncommon. West Wycombe; Downley; Little Marlow; Cookham, Berks, etc.

Order XXV.—LEGUMINOSÆ.

Ulex. *Linn.* Furze.

U. europæus, L. Bab. 73. Heaths, not very common. Whittington Park, Kingshill, Marlow, etc. Occasionally by roadsides, as between Wycombe and Marlow.

Note.—*Juniperus communis* appears to take up, in many places, the post usually filled by this shrub.

U. nanus, Forst. Bab. 73. Heaths. Wycombe Heath, Naphill Common, etc.

Genista. *Linn.*

G. anglica, L. Needle Whin. Bab. 74. Heaths, not common. Wycombe Heath; "Cookham Down," Berks. *Phyt.* i. 985. *O.S.*

Sarothamnus. *Wimm.* Broom.

S. scoparius, Koch. Bab. 74. Fennell's Wood; plentiful at Forty Green, near Penn; near Wooburn Green. Not common in the district.

ONONIS. *Linn.* Restharrow.

O. arvensis, L. Donkeyweed. Bab. 74. Borders of fields, frequent.

NOTE.—This has once or twice occured with a *slightly* spiny stem, but the true *O. campestris* has not been observed.

MEDICAGO. *Linn.*

‡ *M. sativa*, L. Lucerne. Bab. 74. Borders of fields. By the road to Totteridge, and about Bledlow Ridge; not unfrequent on railway-banks, especially near Plomer Hill.

M. lupulina, L. Nonsuch. Bab. 74. Roadsides, etc.

NOTE.—*M. maculata*, Sibth., is not known to occur anywhere in the district.

MELILOTUS. *Lam.* Melilot.

M. officinalis, Willd. Bab. 76. In clover fields about Wycombe and Marlow, and apparently truly wild by roadsides in the latter locality.

NOTE.—This species is called by children "Wild Laburnum."

* *M. vulgaris*, Willd. "Rare." Bab. 76. Cloverfield above Sheepridge, 1864.

TRIFOLIUM. *Linn.* Trefoil.

T. pratense, L. Purple Clover. Bab. 76. Meadows, roadsides, and commons.

NOTE.—A white-flowered variety is frequent in clover fields.

[*T. ochroleucum*, L. This occurs in a MS. list of Loudwater plants, but no locality is affixed: perhaps an error.]

[*T. incarnatum*, L. Being much cultivated in the district, occasionally occurs on the borders of fields, and by roadsides.]

T. arvense, L. Hare's-foot. Bab. 77. Sandy field near Marlow, towards Little Marlow; "little hollow opposite Sir G. Nugent's." *Phyt.* i. 985, *O.S.* "In various field edges about Loudwater," *MS.*

T. striatum, L. Bab. 77. Fern-field, Well End; gravelly lane between Great and Little Marlow, abundant.

T. subterraneum, L. Bab. 78. Fern-field, Well End.

T. repens, L. White Clover. Bab. 79. Meadows, roadsides, etc.

T. fragiferum, L. Bab. 79. In nearly all the meadows by the Thames near Great and Little Marlow, on both sides of the river; "on the knolls in Fennell's Wood," *MS.*; a curious habitat.

T. procumbens, L. Hop Trefoil. Bab. 80. Roadsides, fields, etc.

[*T. campestre*, Schreb., a species nearly allied to the preceding, but larger in all its parts, occurred in 1864 in considerable abundance in a clover-field adjoining Tinker's Wood, near Downley. Mr. J. G. Baker thinks the plant found here is *T. agrarium*, *L.*]

T. minus, Sm. Bab. 80. Roadsides, etc.

T. filiforme, L. Bab. 80. Roadsides, etc. less frequent than the preceding.

LOTUS. *Linn.* Bird's-foot Trefoil.

L. corniculatus, L. "Shoes and Stockings." Bab. 80. Fields and roadsides.

L. major, Scop. Bab. 81. Damp places; Naphill Common; Whittington Park, etc.

ANTHYLLIS. *Linn.* Kidney Vetch.

A. vulneraria, L. Bab. 81. Banks and borders of fields, not unfrequent.

ASTRAGALUS. *Linn.* Milk Vetch.

A. glycyphyllos, L. Wild Liquorice. "Rare." Bab. 82. "In the thicket on the right hand side of the road leading from Hedsor to Clifden, about half-way up the ascent to Clifden, growing very luxuriantly." *Phyt.* i. 985. *O.S.* This locality may be within the five mile radius.

VICIA. *Linn.* Vetch.

V. hirsuta, Koch. Tare. Bab. 82. Waste ground, hedges, and railway embankments.

V. tetrasperma, Mœnch. Bab. 83. Waste ground near Prestwood, plentiful; rare in other parts of the district.

V. Cracca, L. Bab. 84. Hedges, frequent; plentiful by the Thames.

V. sepium, L. Bab. 84. Hedgebanks, etc.

V. sativa, L. Common Vetch. Bab. 84. ‡ *a. V. sativa*, L. Railway embankments. *β. V. angustifolia*, Roth. On commons, frequent; Wycombe Heath, etc.

V. lathyroides, L. Bab. 85. Fern-field, Well End; gravel-pit near Wid moor end; occurs in the MS. list of Loudwater plants, but no special locality is given.

LATHYRUS. *Linn.* Vetchling.

L. pratensis, L. Yellow Everlasting Pea. Bab. 86. Hedges, meadows, and borders of fields.

L. macrorrhizus, Wimm. Heath Pea. Bab. 87. Woods, not common. Whittington Park; hedgebanks near Lane End; Dane Garden Wood, *Miss Chandler*.

ORNITHOPUS. *Linn.* Bird's-foot.

O. perpusillus, L. Bab. 87. Fern-field, Well End.

HIPPOCREPIS. *Linn.* Horse-shoe Vetch.

H. comosa, L. Bab. 88. Frequent on banks, commons, and in woods. Keep Hill, etc.; especially fine at Hughenden.

ONOBRYCHIS. *Gaert.*

‡ *O. sativa*, Lam. Saintfoin. Bab. 88. Borders of fields, usually the remains of cultivation; "stony ground on the right of the road from Little to Great Marlow," *Mr. J. C. Melvill.* I doubt whether this be truly wild anywhere in the district. On the slopes at Hughenden Park.

ORDER XXVI.—ROSACEÆ.

PRUNUS. *Linn.*

P. communis, Huds. Bab. 90. *a. P. spinosa*, L. Sloe. Hedges. ‡ *β. P. insititia*, L. Occasionally found in hedges, usually near houses. ‡ *γ. P. domestica*, L. Hedges, Saffron Plat, High Wycombe.

P. avium, L. Wild Cherry. Bab. 91. Woods and hedges, frequently attaining the size of a tree.

P. Cerasus, L. Bab. 91. Woods and hedges, less frequent than the preceding; and seldom, if ever, more than 10ft. high.

SPIRÆA. *Linn.*

S. Ulmaria. L. Meadow-sweet. Bab. 91. In damp places.

S. Filipendula, L. Dropwort. Bab. 92. "Meadow by the river between Bisham Wood and the town (i.e. Marlow), abundant." *Phyt.* i. 986. *O.S.* This station is apparently in Berks.

POTERIUM. *Linn.* Salad Burnet.

P. Sanguisorba, L. Bab. 92. In meadows and in dry places, where it attains a much smaller size.

‡ *P. muricatum*, Spach. Bab. 92. In crops of Saintfoin, not unfrequent about Wycombe: especially by the railway near Bird-in-hand.

AGRIMONIA. *Linn.* Agrimony.

A. Eupatoria, L. Bab. 92. Roadsides and borders of fields.

NOTE.—I once found a specimen having the flower-spike forked at the top.

ALCHEMILLA. *Linn.* Lady's Mantle.

A. vulgaris, L. Bab. 92. Near Tinker's Wood, Downley; Bradenham Green; near Hazelmoor; "in woods northwest of Marlow, beyond Marlow Common." *Phyt.* i. 986, *O.S.* Not common in the district.

A. arvensis, L. Bab. 93. Cornfields, waste ground, etc.

POTENTILLA. *Linn.* Cinquefoil.

P. anserina, L. Silverweed. Bab. 94. Roadsides, etc.

P. reptans, L. Bab. 95. Roadsides and fields.

P. argentea, L. Bab. 94. Occurs without special locality affixed in Mr. Mill's Marlow list. I have not seen it anywhere in the district.

P. tormentilla, Nesl. Tormentil. Bab. 95. Commons and roadsides.

NOTE.—Frequently occurs with *five* petals.

P. Fragariastrum, Ehrh. Barren Strawberry. Bab. 95. Banks and Woods.

FRAGARIA. *Linn.* Strawberry.

F. vesca, L. Wood Strawberry. Bab. 96. Woods and hedgebanks.

* *F. elatior*, Ehrh. Hautboy. Bab. 96. Rubbish-heap near Mr. Fowler's, Totteridge.

RUBUS. *Linn.* Bramble.

R. Idæus, L. Raspberry. Bab. 96. Naphill Common; near Prestwood, plentiful; "on Marlow Common in the wood to the right." *Phyt.* i. 986. *O.S.*; Whittington Park.

R. fruticosus, L. Blackberry. Hedges, woods, etc.

NOTE.—I prefer for the present to include the whole of the fruticose *Rubi* under the above name, as the time at my disposal has been insufficient to allow me to determine more than one or two of the Babingtonian species at present; a fuller supplementary list will, I hope, be given. Mr. T. P. Lucas has identified *R. plicatus*, W. & N.; *R. discolor*, W. & N.; *R. leucostachys*, Sm.; and *R. corylifolius*, Sm., as Wycombe species.

R. cæsius, L. Dewberry. Bab. 110. Hedges and banks.

GEUM. *Linn.* Avens.

G. urbanum, L. Herb Bennet. Bab. 112. Hedges and woods.

(To be continued.)

Reports of Societies.

Society of Amateur Botanists.—At the meeting of this society held at the School-room, St. Martin's in the Fields, London, May 2nd, 1866, the president in the chair, two members were proposed, and one elected. A letter from Dr. Grey was read stating that he would not be able to deliver his promised lecture. Specimens of the two following rare plants were laid on the table by the president, viz.:—*Ornithogalum nutans*, and *Lithospermum purpureo-cæruleum*: he stated that he had gathered the latter at its old station near Dartford, Kent, and was sorry to say that he saw but very little of it. Mr. Grugeon read a very clever paper on the "Morphology of the Foliar and Floral Organs of the N.O. Fabacceæ." Mr. Smith read a short paper announcing the discovery of *Morchella Bohemica*, in England, and exhibited two most exquisite drawings of this fine morel. The president read some most interesting notes kindly sent by Mr. D. Stock relating to some of the rare plants of Norfolk, at the early part of the present century. A vote of thanks was then passed by acclamation to the above gentlemen for their papers, &c., and the meeting adjourned to the 16th instant, when a special general meeting will be held.—WALTER W. REEVES, Hon, Secretary, Greenwich, 5th May, 1866.

Queckett Microscopical Club.—The monthly meeting was held at University College, Gower-street, on the 27th April, Mr. M. C.

Cooke, (V.P.) in the chair. Mr. S. Highley read a paper on "the application of photography and the magic lantern, to microscopical demonstration," in the course of which he briefly alluded to the labours of the earlier photographers and the results which had been since achieved. After explaining some of the chief points in the construction and arrangement of a camera, he concluded by exhibiting on a screen from an Oxy-hydrogen lantern a series of beautifully executed photographs of diatoms, parasitical insects, &c. The chairman announced that a sub-committee had been appointed to arrange Field excursions during the summer; and also, that the first course of lectures on "the microscope and its use," recently given by Mr. Suffolk, at the society of arts, to members of the club, had terminated with the greatest success. Seven members were elected, and fourteen candidates were proposed.

Norwich Naturalists' Society.—The usual meeting of this society, was held on Monday evening, the 7th of May, in the rooms Surrey Mews, Mr. H. Summons, V.P., in the chair. The secretary gave a report of the past year's accounts, shewing the society to be in a healthy and flourishing condition. The chairman proposed that a vote of thanks be passed to the officers and committee for the past year, which was unanimously carried. The hon. secretary read a very interesting paper on the Rodentia kindly furnished by Mr. J. O. Harper: it gave an account principally of the structure of the skulls and teeth of the several species comprising the order. Mr. J. Perry referred to a notice in the 2nd vol. of the *Naturalist*, page 366, of the *alleged* capture of rare birds' eggs, in Norfolk last season. Mr. T. E. Gunn in reply observed that out of the six species enumerated in the notice only four, viz.: the golden oriole, little bittern, and the Sandwich and Roseate terns, had ever been known to occur in this county, and he had seen only one authentic instance on record of one of these, the first mentioned, ever breeding in Norfolk; there was certainly no authentic record or evidence of the yellow-billed cuckoo and rock thrush ever honouring us with a visit, much less to be allowed to stay and nidificate unmolested except by the *fortunate individual*, who has affirmed in his correspondence to have collected eggs of the whole six species in one season. Perhaps, the correspondent would kindly oblige the readers of the *Naturalist* with more definite information, as to the name of the fortunate collector, and the localities of their capture which were the most essential points in the whole matter; he (Mr. Gunn) also further remarked that real substantial facts of the occurrence of such rarities, would be required before practical Ornithologists would place any reliance in the statement, which if not forthcoming could not be too extensively contradicted, as at some future time this *interesting* capture might be considered as genuine. Various specimens of *Lepidoptera* were exhibited by Mr. W. Lumb, and J. Perry, and specimens of *Coleoptera* by Messrs. J. J. Rice and K. Gunn. After a vote of thanks the meeting terminated.

INTERNATIONAL BOTANICAL CONGRESS.

The foreign Botanists and Horticulturists who have visited England for this Congress, were on Wednesday morning invited to breakfast by Messrs. Veitch and Sons, of Chelsea Nursery, as a preliminary to the commencement of more serious labours. Amongst the gentlemen present were:—Prof. Reichenbach of Hamburg, Prof. Koch, of Berlin, Prof. Caspary, of Königsberg, Prof. Morren, of Liêge, and M. Linden, of Brussels, M. Pepin delegated by the French government, Sir Wentworth Dilke, M.P., Sir Daniel Cooper, Drs. Moore, Hogg, and Masters, and many others.

The congress was opened at eleven o'clock in the South Kensington Museum,

under the presidency of M. de Candolle, who delivered his inaugural address in French. Treating firstly of the advantages of horticulture to botany, he said it appeared to him that gardens could be made still more useful in carrying out physical researches. In the course of his address he further remarked :—Two years ago I made a request to the Fédération des Sociétés d'Horticulture Belges, which appears to have been favourably received, and it may not be useless to repeat it here. It consisted in begging the horticulturists who obtain new varieties not to give them botanical names, with a Latin designation, but merely arbitrary names of quite a different nature, in order to avoid confusion and useless researches in books. For example, if they called a *Calceolaria*, Sebastopol, or Triomphe de Gand, every one would understand it meant a garden variety ; but if they named it Lindleyi, or mirabilis, the student would take it to be a botanical species, and would search for it in scientific works, or in the Floras of Chili ; and botanists, happening perhaps to mistake it, would add it to the end of the genus in their books as a species imperfectly known. The more horticultural names differ from Latin ones, the better it is, unless they can be appended to the scientific nomenclature, as when we say *Brassica campestris oleifera*, instead of, shortly, Colza."

Papers were afterwards read by Dr. Moore, "On the Climate, Flora, and Crops of Ireland," by Prof. Caspary, "On the change in the direction of the branches of Woody plants caused by low degrees of temperature," by Mr. J. E. Howard, "On the present state of our knowledge of the species of *Cinchona*," and by Prof. Karl Koch a paper containing some propositions with respect to systematic botany.

The following is a summary of this important paper :—"Three especial sources of difficulty beset the systematic botanist of our day : First, the confused nomenclature : Second, the scattered literature : Third, the distribution of great numbers of plants by nurserymen under fanciful names. One man can do but very little to remove these obstacles, but a congress of botanists and horticulturists will be better able to effect the necessary changes and improvements. Professor Koch proposes to obviate the confused synonymy by retaining the specific name first given ; but as regards the generic name, to place that which recent investigation has adopted first, and the one by which it was first described afterwards in a parenthesis. If an author's name be given, it should be that of him who first described the plant. Our nomenclature begins with Linnæus, and hence all botanists prior to him are to be disregarded. Secondly the scattered literature. Botanists now a-days write in German, French, English, Italian, &c., and in a large number of different periodicals, so that it becomes very difficult, or next to impossible, for a man to make himself thoroughly acquainted with the literature of the subject. Prof. Koch proposes, therefore to select a number of botanists from various countries to examine and collate the separate publications of their several countries. A general editor is to be appointed in a European town where there is a good library, and all extracts are to be sent to him at that place. The general editor is to arrange these extracts scientifically and to publish them in the Latin language. Thirdly as to the importation of plants by nurserymen. No disadvantage would ensue if the horticulturist were to adopt a provisional name in the first instance, and then apply to a botanist for the correct name, which could then be published ; but in adopting this plan there are two difficulties to be encountered. Gardeners would seldom take the trouble to change the provisional for the scientific name ; and they would not always know which botanists studied particular families, or would not venture to trouble them. This ought, therefore, to be the task of a Botanico-Horticultural Congress. Fourthly, many botanists have already devoted themselves

to particular families, and it is to be desired that others should do the same. Horticulturists might then apply to these botanists for information, &c. Professor Koch then points out several instances where he has succeeded in carrying out the proposed reforms.

Notes and Queries.

Rare Eggs in Norfolk.—As I am just completing a work on "the Birds of Norfolk" I am particularly interested in ascertaining the grounds upon which Mr. W. B. Sharpe considers his latest Oological rarities from this county (?) *genuine.* At present I must own, although I have worked pretty hard at my hobby for some years, I am unaware that either the yellow-billed cuckoo, *Coccyzas americanus*, or the rock thrush, *Turdus saxatilis*, has occurred in Norfolk, much less *remained to breed.* The little bittern, *Botarus minutus*, occurs as a rare straggler, though I never heard of its nesting, the birds being invariably shot on their first arrival. And the nesting here of the golden oriole, *Oriolus galbula*, though more than once recorded, is extremely doubtful. The eggs of this species in the late Mr. Scale's collection, referred to by Yarrell as laid in Norfolk, actually came from Holland. The roseate tern, *Sterna Dougallii*, on the authority of Messrs. Paget of Yarmouth, is said to have been killed *once* in this county, but many years ago, and though the Sandwich tern, *Sterna cantiaca*, is not unfrequently met with in spring and autumn, Mr. Sharpe's friend was fortunate indeed to procure *authentic* eggs of such rare birds *in the same season*, on our coast, where from recent explorations I have reason to believe the common tern, *Sterna hirundo*, and the lesser tern, *Sterna minuta*, are the only species that now remain to breed. Surely Mr. Sharpe, having published so important a statement will not hesitate to communicate the name of the gentleman from whom he received these eggs and obtain also from him every possible particular as to the date and locality. Should these not be forthcoming the only inference must be that Mr. Sharpe was extensively hoaxed; in which case the announcement of such eggs as *genuine* cannot be too extensively contradicted.—Henry Stevenson, Norwich, May 18th, 1866.

Parasite on the Limpet.—Can any of your readers inform me of the generic and specific name of the small red parasite found on the common limpet. It appears to me to resemble a mite but it is not described in Drige's Memoir, on the Acarinæ in the Annales de Sciences Naturelles.—Thomas Graham Ponton.

Rare Eggs.—Under this heading a short time ago I published a notice of some specimens of rare British Eggs, that I had obtained. As I have since discovered that the egg of *Cuculus americanus*, although a *genuine* specimen, is not a genuine *British one*, I feel bound to offer an explanation. A short time back, I entered the shop of a London dealer, with whom I had some business, and I found him busily engaged in unpacking some boxes of eggs, to which he drew my attention. He told me they were collected in Norfolk last season by a gentleman, who was just selling off his collection, previous to departing for Norway on a bird nesting expedition. I looked over the eggs, and selected those I wanted, as I thought it was a good opportunity to add some rare ones to my collection. About the eggs of *Coccygus americanus* and *Turdus saxatilis*, I was particularly cautious, but was assured they were genuine, as the gentleman who made the collection was fully competent to know the distinctive characters of each species. The cuckoo's egg was labelled, which drew my attention to it, but the Rock Thrush's had no mark and I had to ask what egg it was. It struck me that the former was only a variety of the Song Thrush's, or Starling's

eggs, but the man brought some specimens to show me the different shades in the colour, and he further assured me the eggs *were* genuine. I thought that, after such apparently conclusive evidence I was justified in sending to the *Naturalist* a notice of so rare an occurrence, but after a conversation with a gentleman a little while after, whom I knew to well versed in British Ornithology, I must confess I was somewhat doubtful as to the genuine character of my purchases. I was much surprised to hear that at the last meeting of the Zoological Society, my statement had been discussed and warmly criticised by some Naturalists in the room. I happened to have been prevented from attending the meeting, and received this information from a friend. Up to this time I had not received my copy of the *Naturalist*, and so had not known of the insertion of my unfortunate contribution. I immediately went to the man of whom I had bought the eggs, and on pressing the question of the breeding of *C. americanus* in this country, he told me that I had made a mistake; that he had never told me *this* was collected in Norfolk, and that all he said was that the egg was a *genuine* one, but he believed it came from North America. As to the other eggs, he says, they were all collected in Norfolk, but I am sorry I cannot give, as Mr. Reek's suggests, any clue as to the locality where they were obtained. The dealer, however, promises to ask the collector, if he is not already gone abroad, for some information respecting these eggs, and I can assure Mr. Reeks and Oologists generally, that I shall spare no pains to find out about them. In the Norfolk collection there was another specimen of the egg of *A. minuta*, and one (if not two) of *Oriolus galbula*, I think there is no doubt of these two being genuine. *A. minuta* was shot a month or two back, by a member of the Wycombe Natural History Society, and was exhibited at a recent meeting. I myself saw one only last week, in a birdstuffer's shop, that had been received in the flesh, and was there newly mounted, so I think the bird is not *so very* uncommon. As to *O. galbula*, I have recently seen birds and eggs said to have been taken in England, and as W. R. Tate has *twice* observed the bird (*Naturalist* vol. ii., page 118), I think this bird may be even commoner than has been generally supposed. Mr. Briggs, of Cookham, has also seen this bird in a thicket near Billing Bay. That such a mistake should have arisen I much regret, but I trust the explanation given will prove sufficient to satisfy all that when I wrote the notice, I had no doubt in my own mind that the egg of *C. americanus*, was *really* taken in Britain. I may further state that in Gould's Birds of Europe, he says that in Temminck's opinion, the specimens of the yellow-billed cuckooo, killed in Europe did not come from America, but from the North of Europe, where he supposes the bird will yet be found. And further in a collection of eggs sold the other day at Stevens' obtained by the late Mr. H. Wheelwright, in Lapland and Sweden, was sold the egg of the American cuckoo. Are we to believe that this was obtained from America? Acting on Mr. Temminck's supposition, I did not deem it *so* improbable that it might have been found breeding in England.—R. B. Sharpe.

I have lately received in the flesh, a fine specimen of the *Larus glaucus*, or Glaucous Gull, from Lincolnshre.—W. Rich.

Answers to Correspondents.

Mrs. L. M. Pratten.—Your fungus is pronounced by the Rev. M. J. Berkeley, (to whom it was sent for identification) to be *Lycogala epidendrum*, L. It belongs to the sub-order Gasteromycetes, tribe Trichospermi, div. Myxogastres, and is not uncommon on rotten stumps, palings, &c., in Spring and Autumn. —C. P. H.

News.

Flies in the Ear.—The *Journal de Médecine et de Chirurgie Pratique* contains the following curious account :—A locksmith, aged 52, having been treated at the Hôpital Beaujon for a dislocation, had been sent to the Asile de Vincennes for his complete recovery. A few days before leaving that establishment, he felt as if a fly had got into his left ear. He took a lucifer match and tried to get out the intruder with it, but not succeeding, and the pain having subsided, he took no more notice of it. Three days later, being at St. Ouen, he experienced a tickling in the ear, which prevented him sleeping ; and on the following day he went to Dr. Jarjavey's consultation. Here, upon examination, two small larvæ like those which are met with in dead bodies were found in his ear. The patient complained of very violent pain in that organ and all along a line which, beginning from the middle of the forehead, followed the eyebrow, and, crossing the temple, ended behind the mastoid apophysis. He had cramps and a tingling sensation in the arm, fits of trembling, sickness, &c. On visiting him in the evening, Dr. Jarjavey poured a few drops of ether into his ear. This caused great pain at first, but soon after it produced considerable relief, and during the night upwards of one hundred larvæ fell out of the ear on the man's pillow. On the following morning the doctor perceived some large larvæ of the *musca carnaria* at the bottom of the meatus auditorius. Dr Jarjavey got a few out with a proper instrument, then made some injections which brought out fifteen more, and in the evening poured a drop of ether into the ear, whereby three more were got rid of. On the day after, no more larvæ were visible, but the tympanum was discovered to be perforated. The case was now treated with injections of mallows and emollient poultices, and three days later the patient left the hospital perfectly recovered.

Exchange.

British Shells.—I have a few *Hydrobia similis* which I shall be glad to exchange for *Clausilia nigricans*, var. *dubia*, if possible, alive, or to open a correspondence with any one, with a view to the exchange of British Shells or Foreign for British.—Address, W. Rich, 14, Great Russell-street, Bloomsbury, London, W.C.

I have specimens of the following shells for exchange :—*Limnea auricularia*, very fine, *Limnea palustris*, var. *tincta*, *Bulimus montanus*, *Pupa secale*, *Balia perversa*, *Clausilia Rolphii*, *Clausilia biplicata*, *Clausilia laminata*, and var. *albida*, *Cochlicopa tridens*, for which I shall be glad to receive offers.—W. Nelson, Spark-street, Spark-brook, Birmingham.

Carabus nitens.—Mr. Hutchinson will be glad to exchange the above Beetle for any of the following :—*Carabus intricatus*, *C. purpurascens*, *C. agrestis*, *C. monilis*, *C. consitus*, *C. granulatus*, *C. cancellatus*, *C. arvensis*, *C. exaspenatus*, *C. glabratus*, *C. convexus*, *C. hortensis*, *C. nemoralis*, *C. auratus*, or any of the *Chrysomelidæ*. Address Waring Green, Brighouse.

Original Articles.

HABITS OF THE OWL, *STRIX FLAMMEA*, IN CONFINEMENT.

By H. Ullyett.

In October 1863, I had two young barn owls brought me, not yet fully fledged although it was so late in the year. One of them died in a few days but its companion is still alive. It is not very tame; being probably too old when taken from the nest. Its appetite is very voracious; one evening when I had had it about a fortnight, it took six full grown mice for supper, and would have eaten more if I had had them; it swallowed them all whole. But it does not (as naturalists say) *invariably* swallow them head first, I have seen them disappear tail foremost, When any live prey is given it always seizes it by the head and neck, and it is dead almost directly, apparently strangled. After a short scream the victim remains perfectly quiet and resigned. It has eaten frogs occasionally, and black slugs, but rejects grey ones. Once it attempted to swallow a greenfinch whole, after plucking off the head and larger wing feathers; it took two or three minutes but was at length successful for it disappeared and the owl closed its mouth, but shortly after it was disgorged and plucked to pieces. When the owl has more food than it requires for present use it stores it up in a corner. The cat occasionally gets in and purloins it, but the rightful owner takes it very coolly, stares very hard, but as the Irishman remarks "that is all he *says*." The fur and feathers are of course thrown up in pellets; these are generally about an inch and a half long, and three quarters of an inch in diameter; when it is fed on raw meat only, these pellets are still thrown up, and I find them then to consist of sand, gravel, and other things that have been strewed on the floor of his cage. The snapping noise the owl makes when displeased is not simply a sharp closing of the mandibles; they are brought nearly together with the tongue out at one side; the madibles are then pressed, the tongue is withdrawn suddenly, and this produces a snap. My bird makes a noise at night something like the twittering of a swallow on the roof, but not quite so shrill. It never drinks although water has been plentifully supplied. It has not moulted its large feathers since I have had it, but all the small downy ones were changed in the autumn.

High Wycombe.

LIST OF THE LIMNÆIDÆ OF BIRMINGHAM.

By W. Nelson.

The neighbourhood of Birmingham is a very favourable locality for this interesting family, having a number of large pools, shallow streams, and stagnant ditches in the immediate vicinity.

The nomenclature is from Jeffrey's British Conchology.

Planorbis nitidus, occurs in Ponds at Hall Green and Stechford, at the latter locality the mature specimens are much eroded.

P. nautileus, common in ponds at Hall Green.

P. nautileus, var. *cristata*, occurs with the typical form.

P. albus, common in nearly every pond, a curious distortion from a pond at Stechford.

P. spirorbis, not common, in ponds at Alum Rock, Elmdon and Yardley.

P. vortex, common everywhere; a specimen with three of the last whorls separated, assuming the form of a small corkscrew, from boggy land near Acock Green.

P. carinatus, a few specimens from Hebble mill pool, and pond at Sparkbrook.

P. complanatus, common throughout the district; very fine specimens from pools in Sutton Park.

P. corneus, has only very recently disappeared from the locality.

P. contortus, in a stream at Knowle and a ditch at Treeford but rather small.

Physa hypnorum, in many of the ditches in the neighbourhood.

P. fontinalis, found sparingly in several localities.

Limnæa peregra, common.

L. peregra. var. *ovata*, equally common.

L. peregra. var. *decollata*, rather common in ponds at Sparkbrook and Solihull.

L. peregra, var. *scalariformis*, one specimen from a stream in Sutton Park.

L. auricularia, in several localities, but remarkably fine from Pebble Mill pool.

L. stagnalis, very common, varying greatly in size and shape, specimens from Handsworth and Smallheath, being much eroded.

L. palustris, not uncommon at Witton and Yardley.

L. palustris, var. *corvus*, a few from a muddy ditch at Treeford.

L. palustris, var. *tincta*, this distinct variety occurs in a pool, at Sutton Park.

L. palustris, var. *decollata*, sparingly in a pond at Sparkbrook.

L. truncatula, common.

L. glaber, confined to a small ditch at Showell Green.

Ancylus fluviatilis, common, very fine in a small stream near Acock's Green.

A. lacustris, not common but generally distributed throughout the district, occasionally found attached to stones.

A. lacustris, var. *compressa*, this fine and well marked variety occus in a pond at Stechford.

NATURALISTS' CALENDAR FOR 1866, KEPT AT PLYMOUTH.

By T. R. Archer Briggs.

Jan. 19th, *Corylus Avellana*, L. has catkins.

„ 21st, *Crocus vernus*, flowers.

„ 23rd, *Daphne Mezereum*, L. flowers.

„ 24th, Chaffinch, *Fringilla cœlebs*, sings.

Feb. 9th, Wasp, *Vespa vulgaris*, appears.

„ 13th, Several plants of *Ranunculus Ficaria*, L., in flower at this date. *Narcissus pseudo-narcissus*, L. and *Viola odorata*, L. flower.

„ 20th, *Draba verna*, L., in flower. *Viola Reichenbachiana*, Bor., *Cardamine hirsuta*, L., *Chrysosplenium oppositifolium*, L., *Tussilago Farfara*, L., and *Linaria Cymbalaria*, Mill, flower. Lady cow, *Cercinnella septem-punctata*, seen.

Mar. 12th, Golden-crested wren, *Regulus cristatus*, and Skylark, *Alauda arvensis*, sing. A weak and imperfect song from the Yellow Bunting, *Emberiza citrinella*, heard. *Viola permixta*, Jord., and *Adoxa moschatellina*, flower.

„ 13th, Small Garden White Butterfly, *Pieris rapæ*, appears.

„ 17th, Cirl Bunting, *Emberiza cirlus*, and Yellow Bunting, *E. citrinella*, sing. A Beetle, *Timarcha tenebricora*, seen. *Viola hirta*, L., in flower.

„ 20th, *Cochlearia Danica*, L., in flower.

Mar. 22nd, Titlark, *Anthus pratensis*, sings. A specimen of the Great Tortoise-shell Butterfly, *Vanessa Polychloros*, seen. *Prunus spinosa*, *Stellaria Holostea*, L., *Saxifraga tridactylites*, L., and *Nepeta Glechoma*, flower.

„ 26th, Thrush, *Turdus musicus*, builds. *Fragaria vesca* flowers.

„ 27th, Wheatear, *Saxicola Œnanthe*, appears.

April 2nd, *Cerastium tetrandrum*, Curt, *Geranium lucidum*, L., and *Fedia olitoria*, Vahl., flower.

„ 4th, Several Chiffchaffs, *Sylvia rufa*, *Temm.*, in song. Speckled Wood Butterfly, *Lassiommata ægeria*, appears. *Oxalis acetosella* and *Caltha palustris*, flower.

„ 5th, *Barbara præcox*, flowers.

„ 10th, Willow Wren, *Sylvia trochilus*, appears and sings. Pied Wagtail, *Motacilla Yarrellii*, builds, *Ranunculus hederaceus*, *Arenaria trinervis*, L. *Vaccinium myrtillus*, and *Veronica Chamædrys*, flower.

„ 14th, Swallow, *Hirundo rustica*, seen.

„ 16th, Tree Pipit, *Anthus arboreus*, appears and sings. *Ranunculus bulbosus*, *Cardamine pratensis*, *Anthriscus sylvestris*, *Smyrnium Olusatrum*, *Prunus Avium*, L., *Anchusa sempervirens*, *Lithospernum arvense*, *Plantago lanceolata*, *Euphorbia Amygdaloides*, and *Arum maculatum*, flower.

„ 18th, Azure Blue Butterfly, *Polyommatus Argiolus*, appears. *Tinaria sapina*, Desf., *Erisimum Alliaria*, L., and *Lychis diurna*, Sib., flower. *Viola odorata*, going out of flower, *Viola hirta*, beautifully in flower.

„ 20th, *Geranium molle* and *Fraxinus excelsior*, flower.

„ 21st, *Trifolium subterraneum*, L., *Sherrardia arvensis*, *Allium ursinum*, and *Agraphis nutans*, flower.

„ 24th, *Cerastium triviale*, Link., flowers.

„ 26th, Whitethroat, *Curruca cinerea*, heard. *Geranium rotundifolium*, L., *Coronopus Ruellii*, Gaert., *Scandix Pecten*, L., and *Orchis mascula*, flower.

May 4th, *Barbarea intermedia*, Bor., in flower. *Medicago maculata*, and *Asperula odorata*, flower.

„ 5th, *Nasturtium officinale*, and *Sisymbrium officinale*, Scop., flower.

„ 8th, *Trifolium scabrum*, L., flowers.

May 9th, *Prunus Cerasus*, L., *Potentilla reptans*, *Cratægus Oxyacantha*, *Bunium flexuosum*, *Melampyrum pratense*, and *Lysimachia nemorum*, flower. Wall Butterfly, *Lassiommata megera*, appears. Swallow, *Hirundo rustica*, builds.

„ 12th, *Silene inflata*, *Lotus corniculatus*, and *Trigonella ornithopodoides*, D.C., flower.

„ 14th, Orange-tip Butterfly *Euchloe cardamines*, appears.

„ 15th, Martin, *Hirundo urbica*, builds. *Geranium Phœum*, *Geum urbanum*, *Tormentilla reptans*, and *Lithospermum officinale*, flower.

„ 18th, *Chrysanthemum leucanthemum*, flowers.

„ 19th, Small Copper Butterfly, *Chrysophanus Phlæas*, appears. Ruby Tiger Moth, seen. *Spergularia rubra*, St. Hil., *Linum angustifolium*, *Geranium columbinum*, *Hieracium pilosella*, *Symphytum officinale*, *Veronica Beccabunga*, and *Anagallis arvensis*, flower.

„ 23rd, *Ranunculus Flammula*, *Malva rotundifolia*, *Iris pseudacorus*, and *Listera ovata*, flower.

„ 24th, Grizzled Skipper Butterfly, *Pyrgus malvæ*, appears. Small Heath Butterfly, *Cœnonympha pamphilus*, and Blue Butterfly, *Polyommatus Alexis*, seen. *Rhinanthus Crista-galli*, in flower.

„ 28th, *Tamus communis*, flower.

„ 29th, *Malva sylvestris*, *Stellaria graminea*, *Lathyrus pratensis*, *Sedum anglicum*, *Fedia dentata*, Bieb., and *Sambucus nigra*, flower.

„ 31st, *Rubus suberectus*, Anders, *Æthusa cynassium*, *Cotyledon umbilicus*, *Cardium palustris*, and *Orobanche major*, flower.

VESUVIUS.

By F. Buchanan White, M.D.

On the 18th of May, as the day promised well, we (*i.e.* my wife and I,) set off for the ascent of mount Vesuvius, meeting the guide and horses at the town of Torre Annunziata. The road at first gently ascends through vineyards till the village of Boscotrecase is passed, when the incline becomes

steeper as the path degenerates into a mere bridle road running through the vineyards which produce the wine called Lachryma Christi. Amongst the decomposed scoriæ and ashes forming the soil of these vineyards a pretty red *Lychnis* was growing abundantly; on the walls bounding the road I observed the following ferns:—*Grammitis Ceterach*, *Gymnogramme leptophylla*, *Asplenium Trichomanes*, and *A. adiantum-nigrum*, *Polypodium vulgare*, and *Adianthum Capillus-Veneris*. As we advanced the vineyards disappeared and beds of Spanish broom in full flower usurped their place. These too were left behind and nothing broke the desolate plains of scoriæ and ashes but scattered plants of *Artemisia—Glaucium*—a *Silene* with white flowers, and a *Scrophularia*, with pinnate leaves and small purple and green blossoms.—On this plant I saw the larva of some species of *Cucullia*, while now and then a specimen of *Macroglossa Stellatarum* would career wildly over the desert waste—we now reached some old streams of lava covered with scoria, and winding round them reached the base of the cone. As the horses could go no farther we dismounted and leaving them behind began the last ascent. As this part is rather steep, and owing to the crumbling nature of the soil very tiring, a *portantina* or chair with four bearers is necessary for ladies, and accordingly one was in readiness, After two or three rests we at length gain the summit of the *crater*. I am afraid that any description of mine would fail to give an idea of the true appearance of this interesting place. I shall however describe it as well as I can, but before doing so it may be as well to give a little of the history of the mountain.

Vesuvius and Monte Somma (a neighbouring peak rising from the same base) were originally one mountain, known as Mons. Summanus, and recognised by the ancients as a dormant volcano. In A.D. 79, the eruption occurred which destroyed Pompeii and Herculaneum, broke down three-fifths of the crater Mons. Summanus and produced the cone now known as Mount Vesuvius. The remaining two-fifths of the crater of Monte Somma surrounds by a semicircle to the north and east, the cone of Vesuvius; and it has been ascertained that if this segment of a circle was continued, that the present Vesuvius would occupy the exact centre. The height of Monte Somma, is 3,747 feet and between it and Vesuvius lies a semicircular plain, covered with larva and scoria, called the Atrio del Cavallo. Vesuvius varies in height after every eruption. Its present altitude is about 4,169 feet. To return now to my description. On gaining the edge of the crater we saw before us a deep hollow with precipitous sides formed in some places of rocks covered with yellow sulphur and quite perpendicular, in others of reddish

tufa and ashes, perpendicular in some parts, forming a steep slope in others. All these walls were emitting smoke and steam and were quite hot to the touch. In the centre of the crater, which is of an irregular elliptic form, 950 yards in circumference, is a great mass of rocks, scoria, and ashes, irregularly piled together and forming a small cone, on the top of which open two small craters ; round this small cone is a sea of lava covered with rough scoria and black on the surface, but on the side of the crater gleaming darkly red through the fissures. This glowing mass was molten lava. On the other side it seemed to be quite cold and had several deep rifts caused by earthquakes. We were fortunate enough to see one of the small craters in action. Suddenly a deep rumbling would be heard far in the interior of the mountain —then a puff of smoke, or steam, charged with ashes would issue from the orifice, followed by a roar as it were of thunder, and by a volley of red hot stones and scoria, which after being sent high into the air (higher sometimes than the walls of the greater crater,) would rattle down upon the ashes and rocks of the small cone. These outbreaks followed each other with some degree of rapidity. I noted the intervals between them for the space of five minutes in which time there were thirteen, as follows :—

The 1st Eruption was at		1	minute	10	seconds
2nd	,,	1	,,	20	,,
3rd	,,	1	,,	45	,,
4th	,,	2	,,	20	,,
5th	,,	2	,,	43	,,
6th	,,	3	,,	21	,,
7th	,,	3	,,	35	,,
8th	,,	4	,,	0	,,
9th	,,	4	,,	30	,,
10th	,,	4	,,	42	,,
11th	,,	5	,,	3	,,
12th	,,	5	,,	26	,,
13th	,,	6	,,	6	,,

Each lasted from six to ten seconds. Altogether the crater forms a curious and wild scene, especially when, through the drifting vapour, the burning stones were hurled upwards, and the yellow sulpher rocks and molten lava were seen dimly gleaming, while at the same time the subterranean thunder and the noise of the falling rocks, shaken down by the tremor of the ground, appealed as strongly to the organs of hearing as the former did to those of the sight.

But man has got a stomach, climbing up mountains gives an appetite, and guides have discovered that however awful and destructive volcanoes can be sometimes, yet, in their quieter moments, when they are enjoying their *otium cum dignitate*, that, (alas for that *dignitas*) they can be made instrumental in cooking eggs ! Accordingly eggs were prepared in what the guides denominated the Devil's kitchen, *Cucina del diavola*, and we had sat down comfortably to eat them when a gust of sulphureous vapour blew over and nearly choked us, so we beat a retreat to a spot where we had less chance of being asphyxiated, and ate our eggs and drank our Lachryma Christi in peace. There is an entrance to the crater down one of the less precipitous sides by which access may be had to the lava. The guides as the custom is, imbedded some coins in lava and gave them to us as souvenirs of Vesuvius.

Under stones on the very edge of the crater I found some beetles, but being no great Coleopterist I do not know the species. There were two species of *Curculionidæ* (*?*) one very abundant, and five species of *Staphylinidæ;* I also saw two species of spiders and one dipterous fly. Not having any receptacles with me I was only able to secure a few specimens. It would be interesting to know by what these insects can be attracted to the top of this barren mountain where no plant grows. Possibly they may enjoy the warmth.

But I must not forget to mention the splendid view that we had. Immediately below us were the quiet vineyards with long streams of lava stretching far unto them; the dark barrenness of these once destructive streams contrasting curiously with the pleasant green of the vegetation surrounding them. On the right lay Naples on its beautiful bay which formed a large plain of intense blue, studded with picturesque isles, Capri, Procida, and Ischia, and bounded on the east by the rugged limestone mountains behind Sorrento and Castelmare—On the west stretched the great plain of Campania. After one last look into the crater we began to descend and soon reached the base of the Mountain.

Capri, May 30*th*, 1866.

A FLORA OF HIGH WYCOMBE.

By James Britten.

(Continued from page 19.)

Rosa. *Linn.* Rose.

[*R. inodora*, Fries. Mr. T. P. Lucas thinks that this occurs on Keep Hill.]

R. micrantha, Sm. Bab. 115. Keep Hill and Wycombe Park.

R. rubiginosa, L. Sweet Briar. Bab. 115. Wycombe Heath; about Bledlow Ridge, abundant; Keep Hill, *Mr. T. P. Lucas*; "in hedges about Wycombe on the Marlow side." *Phyt.* i. 986. *O.S.*

R. canina, L. Dog Rose. Bab. 115. Hedges, etc.

R. arvensis, L. Bab. 116. Hedges and woods.

Cratægus. *Linn.* Hawthorn.

C. Oxyacantha, L. *β. monogyna.* May. Bab. 116. Hedges, etc.

Note.—A Hawthorn somewhat resembling the famous one of Glastonbury, occurs in Wycombe Park. On January 9th, 1864, several leaves were fully expanded, and there were many bunches of well-formed buds, though no blossoms.

Mespilus. *Linn.* Medlar.

† *M. germanica*, L. Bab. 117. Reported on good authority as occurring in hedges near Noble's Farm, on the hill opposite to Bradenham; also in the edge of the wood above the West Wycombe Station; I have not seen it.

Pyrus. *Linn.*

P. communis, L. Pear. Bab. 117. Hedges and woods, not unfrequent.

P. Malus, L. Crab. Bab. 117. Hedges, frequent.

† *P. aucuparia*, Gaert. Mountain Ash. Bab. 117. Several very small trees in Whittington Park.

P. Aria, Sm. White Beam. Bab. 117. Woods and hedges.

Order XXVII.—LYTHRACEÆ.

Lythrum. *Linn.* Purple Loosestrife.

L. Salicaria, L. Bab. 118. Ditch banks and watery places.

Peplis. *Linn.* Purslane.

P. Portula, L. Bab. 119. Damp places on commons; Naphill Common, etc.

Order XXIX.—ONAGRACEÆ.

Epilobium. *Linn.* Willow-herb.

E. angustifolium, L. Rose Bay, French Willow. Bab. 120. Woods, frequent. Fennell's Wood; Dane Garden Wood; woods at West Wycombe; small wood on Bledlow Ridge; Marlow Bottom; Bisham Wood, Berks.

E. hirsutum, L. Codlings and Cream. Bab. 120. By ditch and stream sides.

E. parviflorum, Schreb. Bab. 120. Woods and damp places.

E. montanum, L. Bab. 121. By roadsides and on walls, rather frequent; wall of Wycombe Park, by Keep Hill; "very common" about Marlow. *Phyt.* i. 986. *O.S.*

[*E. roseum*, Schreb. I believe also occurs, but I cannot name any locality for it.]

E. tetragonum, L. Bab. 121, A weed in damp gardens at High and West Wycombe; "Bisham Wood," Berks. *Phyt.* i. 286. *O.S.*

E. palustre, L. Bab. 121. Damp and boggy places. In Wycombe Rye; by the Thames, etc.

Œnothera. *Linn.* Evening Primrose.

* *Œ. biennis*, L. Bab. 122. Waste ground, Wycombe; railway embankment near Wycombe, *Mr. T. P. Lucas*; established on waste ground by Mr. Atkinson's house at Marlow.

Circæa. *Linn.* Enchanter's Nightshade.

C. lutetiana, L. Bab. 123. Woods; a troublesome weed in damp gardens, Wycombe.

Order XXX.—HALORAGACEÆ.

Myriophyllum. *Linn.* Water Milfoil.

M. verticillatum, L. "Rare." Bab. 123. "There are few ditches or ponds about Marlow which do not produce this plant; it grows more especially however, in the deep ditches above the Suspension-bridge, as well as in a little pond in the middle of a field immediately under Bisham Wood [Berks] about half-way between the river and the Maidenhead road, also copiously in the wood by Sir W. Clayton's Park, near the house." *Phyt.* i. 986. *O.S.*

M. spicatum, L. Bab. 123. Ponds on Naphill Common, abundant. "Much less common [about Marlow] than the former; it only grows, I believe, in the shallow ponds on Cookham Dean, [Berks] at the top of Bisham Wood." *Phyt.* i. 986. *O.S.* Pond, Great Kingshill.

HIPPURIS. *Linn.* Marestail.

H. vulgaris, L. Bab. 124. In the Wick, near West Wycombe; also in the ditches near the Suspension-bridge at Marlow.

ORDER XXXI.—CUCURBITACEÆ.

BRYONIA. *Linn.* Red, or White, Bryony.

B. dioica, L. Bab. 124. Hedges, &c.

ORDER XXXII.—PORTULACEÆ.

MONTIA. *Linn.* Water Blinks.

M. fontana, L. Bab. 125. On Lane End, Wheeler End, and Naphill commons.

ORDER XXXIII.—PARONYCHIACEÆ.

LEPIGONUM. *Fries.* Sandwort.

L. rubrum, Fr. Bab. 127. Fern-field, Well End; Holt-spur gravel-pit, near Wooburn; Lane End Common.

SPERGULA. *Linn.* Spurrey.

S. arvensis, L. Bab. 128. Cultivated fields, frequent.

SCLERANTHUS. *Linn.* Knawel.

S. annuus, L. Bab. 128. Fields, frequent; Little Marlow, West Wycombe, etc.

ORDER XXXIV.—CRASSULACEÆ.

SEDUM. *Linn.* Stonecrop.

S. Fabaria, Koch. Orpine. Bab. 129. Hedgebanks and borders of fields: Booker; road from Wycombe to Marlow; very abundant by the field path from Hughenden to Kingshill; Widmoor End; West Wycombe, *Mr. Ullyett*; Little Marlow, *Phyt.* i. 987, *O.S.*, (where it is recorded as *S. Telephium*; *S. Fabaria* is probably intended) as this is the species occurring in all the other localities: Great Marlow.

[*S. album*, L. Bab. 130. Wall in Wycombe, planted.]

S. acre. L. Wall Pepper. Bab. 130. Walls, frequent. Little Marlow; Wycombe; West Wycombe; Little Missenden, etc.: by the side of the West Wycombe road: and truly wild on the barren hill between Bledlow Ridge and the Union House.

‡ *S. reflexum*, L. Bab. 130. Old wall by Little Marlow Church.

Order XXXV.—GROSSULARIACEÆ.

Ribes. *Linn.*

† *R. Grossularia*, L. Gooseberry. Bab. 131. Hedges about Wycombe, frequent: Hollow Lane; Booker, etc: also in woods: Wycombe Park; wood, Winch Bottom; copse near Little Marlow, etc.

R. rubrum, L. Red Currant. Bab. 132. Whittington Park, near the "Swilley-hole," plentiful; ‡roadside at Widmoor End.

Order XXXVI.—SAXIFRAGACEÆ.

Saxifraga. *Linn.* Saxifrage.

S. tridactylites, L. Bab. 135. Old Walls; Wycombe, West Wycombe (very fine); Little Marlow, etc.

S. granulata, L. Bab. 135. Wycombe Park; meadow on the Hughenden road; meadows in Newland, abundant; Bradenham Church yard; meadows near Cock Marsh, Cookham, Berks.

Chrysosplenium. *Linn.* Golden Saxifrage.

C. oppositifolium, L. Bab. 136. Damp places: Wycombe Park; Whittington Park, etc.

Order XXXVII.—UMBELLIFERÆ.

Hydrocotyle. *Linn.* Marsh Pennywort.

H. vulgaris, L. Bab. 142. Marshy places, not common; Lane End Common; Naphill Common, etc.

Sanicula. *Linn.* Sanicle.

S. europæa, L. Bab. 142. Woods and hedgebanks.

Note.—A very luxuriant example occurred on Bledlow Ridge, having the head composed of eight umbellets, and the involucre of seven or eight very large leaf-like bracts.

Petroselinum. *Hoffm.* Parsley.

**P. sativum*, Hoffm. Bab. 144. Several plants by the railway near the Oxford road, and Wycombe Marsh; in a field of Saintfoin on the road to Totteridge, 1864.

Helosciadium. *Koch.* Marshwort.

H. nodiflorum, Koch. Bab. 144. Ditches and brooks.

β. *H. repens*, Koch. Cock Marsh, near Cookham, Berks.

H. inundatum, Koch. Bab. 144. Ponds on Naphill Common, plentiful; ditch adjoining Cock Marsh, Berks; pond in a field near Marlow, opposite Quarry Wood, *Miss Chandler*; pond on Lane End Common.

SISON. *Linn.* Stonewort.

S. Amomum, L. Bab. 144. Hedgebanks; in some places—as on the road to Marlow—very abundant.

ÆGOPODIUM. *Linn.* Goutweed.

Æ. Podagraria, L. Bab. 145. Hedges, usually near houses; Wycombe Park and Churchyard; near Booker, Totteridge, Lane End, etc.

BUNIUM. *Linn.* Earth-nut.

B. flexuosum, With. Bab. 145. Woods and commons, rather frequent; Whittington Park; Downley; Kingshill, etc.

PIMPINELLA. *Linn.* Burnet Saxifrage.

P. Saxifraga, L. Bab. 145. Banks and commons.

NOTE—Varies greatly in the size and shape of its leaves.

SIUM. *Linn.* Water Parsnep.

S. latifolium, L. "Rare." Bab. 146. Ditches near the Suspension-bridge, Marlow; by Spade Oak Ferry (Bucks side); ponds in Cock Marsh, Berks.

S. angustifolium, L. Bab. 146. Ditches and marshy places; Wycombe Rye; with *S. latifolium* at Marlow.

ŒNANTHE. *Linn.* Water Dropwort.

Œ. fistulosa, L. Bab. 147. Ponds, ditches, and marshy places.

Œ. crocata, L. Bab. 148. Common by the Thames.

Œ. Phellandrium, L. Bab. 148. Ponds and ditches.

ÆTHUSA. *Linn.* Fool's Parsley.

Œ. Cynapium, L. Bab. 148. Waste ground and cornfields; a garden weed.

SILAUS. *Besser.* Pepper Saxifrage.

S. pratensis, Bess. Bab. 149. Meadows by the Thames; Little Marlow; Well End; "very abundant in the meadows about Cookham, and under Bisham wood," Berks. *Phyt.* i. 987. *O.S.*

ANGELICA. *Linn.*

A. sylvestris, L. Bab. 149. "By the banks of the river Thames," *Phyt.* i. 987. *O.S.* I have not seen it.

PASTINACA. *Linn.* Parsnep.

P. sativa, L. Bab. 150. Hedgebanks and borders of fields.

HERACLEUM. *Linn.* Cow Parsnep.

H. Sphondylium, L. Bab. 150. Banks, meadows, and borders of fields.

NOTE.—A curious form occurred near West Wycombe, having a foliaceous umbel, part leaf and part blossom.

(To be continued.)

Reports of Societies.

Manchester Geological Society.—At the monthly meeting of this society Mr. E. W. Binney, F.R.S., the president, in the chair; the Chairman laid before the meeting some reptilian remains in his possession. One was the remains of a jaw of a labyrinthodoid reptile, the anthracasaurus, obtained from the coal at Heywood; and the other the caudal vertebra of an ichthyosaurus or labyrinthodoid, found in Staffordshire. He remarked that when these were found it was not fashionable to believe that reptiles existed during the coal period, but latterly they had turned up in remarkable abundance.—Mr. G. C. Greenwell, one of the hon. secretaries presented a fossil found in the lower silurian rock near Coniston, and a piece of greenstone, part of a large boulder lying near the turnpike, in the vicinity of Langdale, in the same neighbourhood.—Mr. Hull, C.E., directed attention to a piece of rock surface in a quarry on the north side of Horwich Moor, overlooking a deep valley running up from Deane Mill, near Bolton, from which the turf had been recently cleared away. The rock gave every appearance of having been glaciated; it was worn into the usual grooves, which appeared to range east and west; and though the flutings were not very distinct, the rock, which was 900 feet above the sea, had all the appearance of a rock in a glacial district.—Mr. Greenwell then read a paper on "The Ulverstone Hematite." After describing the position in which the deposits of hematite iron ore in the Ulverstone district are generally found, he said that the comparison of the deposits of Ulverstone with those of the forest of Dean would be very interesting, both being found in the mountain limestone; and should there be found to be any identity between them, so as to lead to the discovery of their continuity at Ulverstone as in the forest of Dean, any doubt as to the exhaustibility of this ore would be finally set at rest. Should this discovery be made, hematite iron ore will be found to exist in the entire mantle of limestone surrounding the great Lake district, which commences at Cleator, and passes by Ireby, Kirkby Lonsdale, and Cartmel to Ulverstone. An interesting discussion followed.—The thanks of the society were voted to Mr. Greenwell for his paper, and the meeting adjourned.

Queckett Microscopical Club.—The ordinary monthly meeting of this society, was held on the 25th ultimo, (May) at University College, Gower-street, Mr. P. Le Neve Foster, Vice-President, in the chair. A paper was read by Mr. H. Wigg, on 'Some motions in the pale blood *Corpuscles.*" Arrangements were announced for two Field excursions in the month of June. Mr. James How, exhibited some sharply executed photographs of *Pleurosigma angulatum*, taken by Captain E. Curtis, of the United States Army, with one of Powell's 1-50th object glasses. Fourteen members having been elected, and other business disposed of, the meeting terminated with a conversazione.

At the monthly meeting of this society held at University College, London, on the 22nd instant, Mr. P. Le Neve Foster, Vice-President, in the chair, a paper was read by Mr. N. Burgess, on "The Pigment cells of Plants in some of their varied forms and structure." A paper was also read by Mr. M. C. Cooke, on "An Improvement in Micrometers." A second field day was announced for the 26th instant, (when a most satisfactory excursion to Darenth Wood and Northfleet marshes was made.) Several new members were proposed, and after some time had been passed in agreeable converse and examination of objects the meeting adjourned to July 27th, when the Annual General Meeting will be held.

Observations.

Hydrochelidon nigra.—During a recent visit to Cookham on the 26th of May, I obtained the following ornithological notes from Mr. Briggs, of that place, which may prove of interest to some of my readers. He had procured for my collection good specimens of the following birds—Black Tern *(H. nigra)*, Nightingale *(Luscinia philomela)*, and a Blackcap *(Sylvia atricapilla)*, to each of which an interesting episode is attached. It is rare to find sea birds, so far inland, and this is the first time the Black Tern has come under my notice, although sometimes when a strong east wind has been blowing for a day or two, sea-swallows have been shot in the neighbourhood of Cookham, and the Common Tern *(Sterna hirundo)* has been seen there two or three times in the last few years. In the present instance four birds were observed, and one of them, described to me as a "white one," was particularly noticed by several people. I think this must have been *S. hirundo*. Two out of the four were shot a little way from Cookham, and taken to Mr. Briggs, who purchased them for my collection. On dissection they proved to be male and female of *H. nigra*, the latter being full of minute eggs. The second bird mentioned *(L. philomela)* was a male, which killed itself by flying against the glass window of a conservatory. With regard to the Blackcap *(S. atricapilla)*, this was a hen, and Mr. B.'s attention was drawn to it by a man on the estate, who told him a young bird was lying in the middle of the road. On going to the spot, Mr. Briggs found it to be a hen Blackcap, evidently in great pain, as it allowed him to capture it without resistance. It died shortly after, and on skinning it, Mr. B. found it to be completely egg-bound.—R. B. Sharpe.

Food of the Kestrel.—About a week ago Mr. Briggs received from a friend near Reading, a parcel in which was a fine male Kestrel *(Tinnunculus alaudarius)* which had been sent "just as it was shot." In its claws was a slow-worm tightly clenched, and still living when the parcel was opened. Unfortunately both bird and reptile were too much injured for preservation, the beak of the former being entirely shot away. Mice, small birds, and insects have been noticed as the food of this hawk, but I know of no instance recorded of the Kestrel making a meal of a slow-worm.—R. B. Sharpe, May 31.

Parus cæruleus.—A curious instance of the confidence reposed in man by some birds during the breeding season, was told me by Mr. Briggs. A Blue Titmouse *(Parus cæruleus)* had built its nest in a brick wall at Formosa, and when there were two eggs in the nest, Mr. Briggs watched the female into the hole, and then caught her. The little bird, however, did not seem to be very frightened, and he had not the heart to kill it, and therefore released it. When freed, it perched on a pear tree hard by, and then returned to the hole, and on May 26th was sitting on six eggs.—R. B. Sharpe.

Singular Instincts of Birds, and contrary sites chosen for building in.—In the spring of 1856 I found a nest of the Missel Thrush, containing four eggs, sitting, built on the top of a wall, notwithstanding the place was surrounded by trees suitable for that species to build in. The following summer I met with a nest of the Blackbird, containing four eggs, built in a Magpie's nest, eight yards from the ground. There were plenty of rocks, bushes, &c., round about. Shortly after this, and not far from the place, I discovered a Chaffinch's nest containing four eggs, sitting, built on the flat ground, at the foot of a large oak, in an extensive woodland district. On the 16th of May, of the present year, I discovered a nest of Ring Ouzels, fully fledged. The young brood made their exit at my

approach, and, on examining the nest, I found to my surprise, that it was no other than a last year's nest of the Song Thrush, which the Ouzels had taken possession of, and partly lined with a few bents, ling, and other mountainous matter. Not more than ten yards from the place a female of the same species, and probably the mother bird of the young just mentioned, rose at my feet, and on looking I was still more astonished to see three eggs laid on the sand, in a hollow and having *no nest at all.* In my rambles I have found scores of nests of the Ring Ouzel, but this is the first instance I have known of this species not having the will or capacity to make a nest of its own. To assure your readers of the impossibility of any mistake on my part, of the species referred to, I beg to say I saw the birds in every instance, and those whose eggs I found, are now in my possession. I may here add that I not unfrequently find the nests of the Wren in trees several yards from the ground.—JOHN BLACKBURN, Hebden Bridge, Manchester.

DATES OF ARRIVAL OF THE SPRING MIGRANTS, 1866.

April 15. Chiffchaff, Willow Wren, Tree Pipit, and Swallow.
,, 17. Cuckoo heard.
,, 19. Sand Martins on the Calder. Mr. Talbot.
,, 22. Saw Whinchat.
,, 26. Heard Whitethroat.
May 10. Heard Lesser Whitethroat.
,, 13. Heard Corn Crake, and Hedge Warbler. Saw Wheatear.
,, 20. Heard Wood Warbler, and saw a few Martins at one of their breeding places.
,, 26. Saw Redstart.

The pair of Wheatears that I saw on the 13th of May did not stay to breed here; they were apparently stragglers. The Redstart that I saw on the 26th was also a wanderer. The Redstart arrives here about the 30th of April, but is sparingly distributed. Martins are not numerous.—GEO. ROBERTS, Lofthouse, June 20, 1866.

Notes and Queries.

New British Morel.—The *Morel* referred to in the last Number of the *Naturalist*, page 19, should be *Morchella crassipes*, not *M. Bohemica.*—W. G. S.

WATER WEEDS.

Tastefully decking your watery dwelling,
Who can deny to you beauty and grace,
Emerald sprays flaunting in prodigal clusters
Tinting the streamlets in every place?
What though the balmy breeze breathes not upon you
Tempering the noon's heat with genial kiss,
Ye in your crystal home, diamond-besetted,
Share not the less of the Summer-tide's bliss.

Need ye repine that the butterfly glances
Far overhead away where ye wave?
Did he perchance dip his wings in your waters
Your Paradise might prove his gloomy grave:
Do ye regret that the bee's murmuring music
Swells not within your own moss-bordered caves?
Melodies witching float ever beside ye,
Borne from the rocks by the stream's tiny waves.

Better by far than the lone mountain flow'ret,
Torn by each blast in its riotous sweep,
Ye need not reck as the whirlwind rude passes,
Safely embosomed within your own deep;
Summer, that scorches the blades on the highland,
Dare not intrude with its withering hand;
Winter, indulgent, his piercing breath tempers,
Nursing you warmly beneath his ice-hand.

Have ye not those who disport 'neath your shadows—
Daphne and Cyclops in varying mood;
Clustering life on the tiniest branchlet,
Pensioners seeking their liberal food;
Forms that our frail vision cannot discover
Gather in myriads o'er each spreading leaf,
Buoyant in life, and in joyousness seeming
Ever to mock the deep moanings of grief.

Blooming so tenderly too o'er the waters,
Mingling your perfume with earthgendered flowers?
What do ye lack in your watery dwelling?
What has kind nature grudged you of her dowers?
This will I learn as I ponder your wonders—
Nought could build up your perfection more sure,
And though ye perish, or I sink in darkness,
Beauty and Truth must for ever endure.

H. WILLIAMSON.

Original Articles.

THE PLOUGHMAN'S BIRDS.

By Geo. Roberts.

Pied Wagtail. Of all the feathered friends of the farmer perhaps the Pied Wagtail is the most useful, every day in summer, and in winter when the ground is not frozen, is this little bird performing eminent service for him, and this service is entirely unmixed with evil. It is the ploughman's constant companion, no other bird is so regular in its attendance on the plough, being ready to search for, and pick up the lurking enemies of vegetation the moment the first furrow is upturned in the early morning. The smallest fields and those that are situated among dwelling houses are frequented, as well as those which are large and remote from villages. Leaving its usefulness out of consideration its pretty plumage, and lively manners renders it a general favourite. When in the arable field it often perches on a clod and sings, its song is rapid, clear, and sweet, not unlike that of the swallow. It will sing on a stone, a post, or rail, but not often in hedges. Its almost general exemption from persecution renders it remarkably tame and confiding; it will continue its search for insects in the fresh earth till the horses get within a few feet of it, it will then fly round the ploughman and drop into the furrow again close behind him. As it approaches the field it is self-heralding; its loud, clear note being seldom mistaken; it is also well known by its peculiar flight. From its undulating or "ducking" flight it is named in some districts the "Bessie ducker," a name by no means inappropriate.

Gray Wagtail. This Wagtail is more handsome, and no less indefatigable as an insect hunter than the preceding. Many of its manners are very similar. It is rather more fearful, flying away further when alarmed. Its note is shriller, and its flight is undulating, but somewhat more rapid. It is a permanent resident here, and it may be seen following the plough in February and March. Very few breed in my immediate neighbourhood, I have never yet found a nest.

Yellow Wagtail. This species comes about the 22nd of April. It is more frequent here in summer than the gray one, though it is not common. It likes to hunt among the fresh soil, and will perch on a clod and sing as

the others do. It is a very clean and handsome bird ; the eye of the most indifferent rustic will often linger on its brilliant livery with unfeigned pleasure.

Meadow Pipit or Titlark. The Titlark is almost as regular in its attendance on the plough as the Pied Wagtail, being present both in winter and summer. It will stand on a clod like the wagtails, uttering its short "pit pit," but is less industrious and flies away oftener. When motionless it is difficult to perceive as it is nearly the colour of the soil. One of its notes is not unlike the squeak of a mouse. In April it is an untiring songster, raising itself every few minutes with a sort of fluttering, laboured motion, and then descending with outspread wings, very frequently alighting on a rail, or stone. White says, Tit begins its song in the middle of April, but I have heard it two seasons together in March. This season I heard it the first time on the 18th of March.

Sky Lark. This bird is a ground feeder, and often picks up a morsel among the fresh turned up soil, but it seems to prefer stubbles, young wheat, or clover. It is a discursive bird, often shifting its position, or flying away ; it is very common, and an unwearied singer. In April when the buds are bursting, and the air is filled with the scent of spring, it will carol all day long above the ploughman's head.

These birds—the wagtails and larks—associate together amicably, and never quarrel or fight like the sparrows, and some other combative species.

Rook. The five birds above named come and feed on the arable field in spring in odd ones, or pairs, the rooks come in companies, or flocks. The rook is not surpassed by any other bird I know for sagacity. Flocks will allow the ploughman to pass within a few yards of them, but a gunner is seldom permitted to get within gunshot. There are always sentinels who, on the approach of an enemy, give a caw, when they all rise and make off, almost always keeping clear of the lurking alarmist. In spring the Rook picks up a great many grubs, and worms, which the plough uncovers, but these are not exclusively the objects of its search. Potatoes newly planted, and newly sown barley and peas, form a large portion of its fare. In summer and autumn it attacks the growing peas and beans, and bills up the newly sown wheat. These and other depredations which might be mentioned are often very serious, consequently it is looked on by the farmers more in the light of an enemy than a friend, and I think with some reason. In districts where Cockchafers abound the Rook may be very beneficial, and in pasturing districts it will certainly be less injurious than where the soil is well culti-

vated. In my neighbourhood Cockchafers are happily unfrequent. The Rook has some credit for destroying wireworms, but I may just remark that wireworms are by no means easy to capture, for they are generally either below the surface, or quickly out of sight when uncovered by the plough. When on the ground the Rook both walks and hops.

Starling. Starlings approach the field in companies, or flocks, and very frequently accompany the Rooks. When feeding they keep up a sort of half whistling, half chattering concert, which is not disagreable to listen to. They feed largely on ground larvæ, worms, &c., but they are very annoying to the gardener in summer; their fondness for cherries is excessive. They keep together in numerous companies at all times of the year. Two nests that I have known this season had three old ones each.

Sparrows. The Sparrows accompany the ploughman in spring, but they are much more constant and numerous in autumn, when grain and the seeds of weeds are mixed with the soil. They approach the field with great noise and ceremony, and are very erratic and hurried in their manners, constantly changing their position, and flying up, generally alighting on the topmost branches of the nearest hedge. Their flight is short, and somewhat laboured. The depredations they commit in the newly sown barley fields in spring, and in the harvest fields in autumn are very extensive. They enter the wheat fields in immense flocks, and only move from one part of the field to another when the bird-boy scares them with his rattle. Sparrows can cling to, and balance themselves on the slender upright ears of corn, and bill the contents out; this is a performance which I have never seen any other bird attempt. When doing so much corn is knocked on to the ground and wasted. All kinds of grain are attacked by the marauders, both at the time of sowing, and when it is ripe. These destructive habits render the sparrow one of the greatest annoyances the cultivator of the soil has to contend with.

Chaffinch. The Chaffinch is often an associate of the ploughman. It does not pursue the newly made furrow, searching methodically as it goes along like the Wagtail, but hops *across* the furrows, and seeks among the ground that is ploughed; it prefers feeding on the level ground after harrows; it does much damage in spring by picking up the newly sown barley; it has a propensity for the seeds of cruciferous plants, and it is almost impossible to preserve the seed of cabbage, turnip, or rape, when it is ripening, from its attacks. It generally wastes a great deal by shaking the dry, and partly opened pods. Its habit of pulling up young growing plants to get at and

devour the seed is well known. I have seen it collect insects after the plough in spring, but its principal food seems to be grain and the seeds of weeds. Whether it is beneficial to the farmer or not is very doubtful.

Greenfinch. This finch frequently feeds in spring in the newly sown fields. It only alights occasionally in the ploughman's furrow. Like the Chaffinch it has a strong propensity for the seeds of cultivated cruciferous plants. It feeds largely on the seeds of weeds, I have found the triangular seeds of plants belonging to the *Polygonum* family, and seeds of the Spurges in their stomachs.

Yellowhammer. Sometimes may be seen in the wake of the ploughman, but it is a very inconstant attendant. It prefers feeding on the level ground or in the stubbles.

Robin. The Robin is eventually a ground feeder. It is very unsocial, and in winter is remarkably mute, as far as disconnected notes go. When in quest of food in the arable field it generally stays about the ends of the furrows, flying into the middle of the hedge when disturbed by the horses, and dropping down again when they go away. It searches over a limited area, attaching itself to one spot and remaining there. Long habit enables it to detect invisible insects by the motion they produce on the surface of the soil. The Robin consumes vast quantities of worms, small ground larvæ and centipedes, and well earns the immunity that it enjoys.

Wood Pigeon. This bird does much injury by feeding among newly-sown barley, wheat, oats, peas, or beans, but it is not very common in my immediate neighbourhood, I cannot therefore, say much respecting its habits, MacGillivray says, it feeds occasionally on the seeds of field mustard, and charlock. A few miles further east where there are large woods it occurs in considerable numbers, and makes serious ravages among the farmer's produce. In the first volume of the *Naturalist* there is an interesting note by Mr. Ranson on the destructiveness of this bird.

These are the principal birds I have seen feeding in the fields after the plough or harrows. They are all permanent residents but the Yellow Wagtail. The three Wagtails and the Robin are almost exclusively insectivorous, and are worthy of careful protection.

Lofthouse, June 20th, 1866.

THE ALLEGED RARE EGGS FROM NORFOLK.

By Hy. Stevenson.

I should have again referred to this subject in the July number of the *Naturalist*, had I not expected to find therein some further and more satisfactory explanations than Mr. Sharpe has yet been able to render. As to his own belief in the *genuineness* of the eggs recorded, (p. 366, vol. ii.) no one can have any doubt; but the announcement of a London dealer that a gentleman (no name given,) who had so opportunely departed for Norway, collected them *all in Norfolk in one season*, leaves their genuineness, as British specimens, as questionable as ever. Let us just reconsider the species the eggs of which we are to receive on such authority as laid in this favoured county, Yellow Billed Cuckoo, Rock Thrush, Little Bittern, Golden Oriole, Roseate Tern, and Sandwich Tern; as to the first we are relieved from further enquiry, since a reference to the London dealer has now established this as a *genuine* specimen, but not a *British one*, and Mr. Sharp's own remarks, respecting the Rock Thrush's? egg, will, I think, as effectually dispose of that, at least in the eyes of such Naturalists as required *authentication* and *identification* as matters essential. As to the eggs of the Little Bittern and Golden Oriole, it is of course quite possible they might have been laid in Norfolk, but hitherto, as I stated in my last letter, no authentic instance has been known of either species remaining to breed in this county. I would here remark also, that eggs, easily obtainable on the continent, but *very rare* as laid in England, are the last that a cautious collector should purchase from dealers, with no better guarantee as to their local value. Norfolk I fear as a rich Ornithological district gets credit for many rarities it has no claim to, and as I remember in days gone by, that schoolboys a little hazy as to the geographical position of some classic spot, invariably described it as *somewhere* in Asia Minor, so also dealers, when wanting a *British* site for either eggs or birds invariably select Norfolk. It would moreover be rather singular with my present facilities for acquiring the earliest information on Ornithological subjects from all parts of the county, that such interesting facts should have escaped me altogether. As to the Roseate and Sandwich Terns, as previously stated, from a recent exploration of this coast, I have reason to believe that only the Common and Lesser Terns still nest with us; the Sandwich Tern in spring and autumn occurs not unfrequently, the Roseate has been seen but *once*. How then with the known difficulty of identifying

the eggs of such birds, even under the most favourable circumstances, can Mr. Sharpe maintain their *genuineness* when purchased, as he admits, simply on the word of a dealer?—Did I not know from experience the rascality that goes on in this trade I might have more faith than I now have in the *genuineness* of any one of these *quasi* Norfolk rarities.

Norwich, July 11th, 1866.

NATURALISTS' CALENDAR FOR 1866, KEPT AT PLYMOUTH.

By T. R. Archer Briggs.

(*Continued from page* 29.)

June 1st, *Rubus cæsius*, in flower.

„ 2nd, *Œnanthe crocata* and *Heracleum Sphondylium*, in flower.

„ 5th, *Hypericum humifusum* and *Galium tricorne*, in flower.

„ 9th, Cream-spot Tiger Moth, *Arctia villica*, appears. *Epilobium lanceolatum*, (S. & M.), flowers.

„ 12th, *Cornus sanguinea*, *Rosa canina*, *Convolvulus arvensis*, *Scrophularia aquatica*, and *Bartsia Odontites*, flower.

„ 14th, Meadow Brown Butterfly, *Hipparchia Janira*, and the Large Skipper, *Pamphila Sylvanus*, appear. *Rosa tomentosa*, Woods, *Rosa arvensis*, *Epilobium obscurum*, Schreb, *Epilobium montanum*, and *Vicia cracca*, flower.

„ 15th, Cinnabar Moth, *Callimorpha Jacobœa*, appears.

„ 16th, *Carduus nutans*, *Verbascum virgatum*, and *Thymus Serpyllum*, flower.

„ 19th, *Hypericum Androsœmum*, *Hypericum pulchrum* and *Valeriana Sambucifolia*, Mik., flower.

„ 21st, *Orobanche amethystea*, Thuil., at WhitsandBay, for the most part passed out of flower at this date. *Galium Mollugo* and *Linaria Elatine*, flower. *Hyoscyamus niger*, in flower. A specimen of the Humming Bird Hawk Moth, *Macroglossa stellatarum*, seen.

„ 23rd, A specimen of the Red Admiral Butterfly, *Vanessa Atalanta*, seen. *Rosa micrantha*, Sm., flowers.

June 26th, *Hypericum perforatum*, *Rosa collina*, Jacq., *Epilobium parviflorum*, *Erica tetralix*, and *Verbena officinalis*, flower.

„ 27th, *Ballota nigra*, flowers.

„ 30th, *Hypericum montanum*, *Ononis arvensis*, *Galium verum*, *Carduus lanceolatus*, *Carduus arvensis*, *Erythrea Centaurium*, *Linaria vulgaris* and *Stachys Betonica*, flower. *Orchis pyramidalis*, in flower.

10, *Torrington Place*, *Plymoulh*,
July 18, 1866.

A FLORA OF HIGH WYCOMBE.

By James Britten.

(Continued from page 37.)

Daucus. *Linn.* Carrot.

D. Carota, L. Bab. 151. Railway banks, pastures, and sides of fields.

Note.—Examples frequently occur having the umbel developed into many smaller ones.

Torilis. *Adans.* Hedge Parsley.

T. Anthriscus, Gaert. Bab. 151. Hedges and banks.

T. infesta, Spr. Bab. 152. Corn and clover fields.

T. nodosa, Gaert. Bab. 152. Banks and fields. London road, High Wycombe; clover-field near Tinker's Wood; "in a field on the right of the Wycombe road [from Marlow] at the first descent, also on Cookham Green," Berks. *Phyt.* i. 987. *O.S.*

Scandix. *Linn.* Shepherd's Needle.

S. Pecten-Veneris, L. Bab. 152. Fields, etc.

Anthriscus. *Hoffm.* Chervil.

A. sylvestris, Hoffm. Bab. 152. Hedges and woods.

A. vulgaris, Pers. Bab. 153. Is recorded without locality in Mr. Mill's Marlow list; near the river between Great and Little Marlow, *Miss Chandler*. I have not seen it anywhere in the district.

Chærophyllum. *Linn.*

C. temulum, L. Rough Chervil. Bab. 153. Hedgebanks and borders of fields.

CONIUM. *Linn.* Hemlock.

C. maculatum, L. Bab. 153. Rare in this district. A fine plant in Winch Bottom, near the gamekeeper's cottage; gravelly hollow in a field on the right hand of the road between Marlow and Bisham, Berks, ***Miss Chandler.***

ORDER XXXVIII.—ARALIACEÆ.

ADOXA. *Linn.* Moschatel.

A. moschatellina, L. Bab. 155. Hedgebanks and woods, not very common; back lane to the Marsh; between Downley and West Wycombe; Booker; small copse in meadow near Chapel Lane; "woods beyond Marlow Common." *Phyt.* i. 988. *O.S.*

HEDERA. *Linn.* Joy.

H. Helix, L. Bab. 155. Hedges and woods.

ORDER XXXIX.—CORNACEÆ.

CORNUS. *Linn.* Dogwood.

C. sanguinea, L. Bab. 155. Hedges, etc.

NOTE.—In 1865 this shrub flowered for the second time in August—September, in most of the hedges; is this an ordinary occurrence?

DIVISION III. COROLLIFLORÆ.

ORDER XL.—LORANTHACEÆ.

VISCUM. *Linn.* Misseltoe.

V. album, L. Bab. 156. Wycombe Park, on Limetrees and Hawthorns; West Wycombe Park, on Hawthorns and Elms; small copse between Little Marlow Church and the river, on Poplars, abundant; on a Thorn by the Bucks side of the river between Cookham and Bourne End; also at Booker.

ORDER XLI.—CAPRIFOLIACEÆ.

SAMBUCUS. *Linn.* Elder.

S. Ebulus, L. Bab. 157. "Dane's Blood." By the side of the pond just beyond Deerham's Farm, by the road leading from Loudwater on towards Penn.

S. nigra, L. Bab. 157. Hedges, etc.

VIBURNUM. *Linn.* Guelder Rose.

V. Lantana, L. Bab. 157. Hedges, frequent.

V. Opulus, L. Bab. 157. Hedges and woods, frequent.

LONICERA. *Linn.* Honeysuckle.

L. Periclymenum, L. Bab. 158. Hedges and woods.

The variety *quercifolium*, having lobed leaves, occurs in Windsor Lane, near Wooburn Green.

ORDER XLII.—RUBIACEÆ.

SHERARDIA. *Linn.* Field Madder.

S. arvensis, L. Bab. 159. Fields and roadsides.

ASPERULA. *Linn.*

A. cynanchica, L. Quinancywort. Bab. 159. Banks and commons; Keep Hill, etc.

A. odorata, L. Woodruff. Bab. 159. Woods.

GALIUM. *Linn.* Bedstraw.

G. cruciatum, L. Crosswort. Bab. 159. Banks, not very common; Keep Hill, etc.

G. Aparine, L. Cleavers. Bab. 160. Hedges and waste ground.

[*G. erectum*, Huds. I think this occurs on Keep Hill, but am not quite sure.]

G. Mollugo, L. Bab. 161. Hedges and banks.

G. verum, L. Ladies' Bedstraw. Bab. 161. Banks, etc.

G. saxatile, L. Bab. 161. Fernfield, Well End; Naphill Common, etc.

G. uliginosum, L. Bab. 162. In wet places; wet field at Little Marlow, *Mr. J. C. Melvill;* etc.

G. palustre, L. Bab. 162. By the Thames and by ditches, frequent.

ORDER XLIII.—VALERIANACEÆ.

VALERIANA. *Linn.* Valerian.

V. sambucifolia, "Mikan." Bab. 163. I suspect this to be our common Valerian, though recorded as *V. officinalis* in the Marlow list. Ditch and river sides, and in lanes; also on Keep Hill, a somewhat strange habitat.

V. dioica, L. Bab. 164. Boggy places in Whittington Park, abundant, ; in meadows by the Wick; by the Strand at Cookham, Berks; *Miss Chandler.*

VALERIANELLA. *Mœnch.* Corn Salad.

V. olitoria, Mœnch. Lamb's Lettuce. Bab. 164. Cornfields, banks, and waste ground.

V. dentata, Deitr. Bab. 165. Clover fields, not unfrequent; West Wycombe, Little Marlow, etc.

ORDER XLIV.—DIPSACACEÆ.

DIPSACUS. *Linn.* Teasel.

D. sylvestris, L. Bab. 165. Hedges in damp places, and by streams, not very common.

D. pilosus, L. Shepherd's Rod. Bab. 166. "At High Wycombe. *Mr. J. Rayer*" *Botanists' Guide*, i. 34. The only place in which I have been able to find it is on the right hand side of the road from Wycombe to Marlow, between Cressex Farm and Handy Cross, where it grows very sparingly.

KNAUTIA. *Coult.* Field Scabious.

K. arvensis, Coult. Bab. 166. Cornfields and banks.

SCABIOSA. *Linn.* Scabious.

S. succisa, L. Devil'sbit. Bab. 166. Woods and pastures, not common. Whittington Park; meadow near West Wycombe.

NOTE.—Occurred at Whittington Park with pale pink blossoms.

S. Columbaria, L. Bab. 166. Banks and sides of fields.

NOTE.—Frequently occurs with white flowers.

ORDER XLV.—COMPOSITÆ.

EUPATORIUM. *Linn.* Hemp Agrimony.

E. cannabinum, L. Bab. 173. Ditch sides in Newland and near the Marsh; plentiful by the Thames.

PETASITES. *Gaert.* Butterbur.

P. vulgaris, Desf. Bab. 173. By the Wick in several places; also by the Thames.

TUSSILAGO. *Linn.* Colt'sfoot.

T. Farfara, L. Bab. 173: Cornfields, railway banks, and waste ground, not very common.

ERIGERON. *Linn.* Fleabane.

E. acris, L. Bab. 174. Dry places; hill near West Wycombe; roadside near the Union, Saunderton; Bledlow Ridge; field near Marlow, with *Trifolium arvense*; White Hill, between Wycombe and Beaconsfield.

BELLIS. *Linn.* Daisy.

B. perennis, L. Bab 174. Banks, meadows, etc.

[*Solidago Virgaurea*, L. I think I have seen on Lane End Common, but have noticed it nowhere else in the district.]

INULA. *Linn.*

I. Conyza, DC. Ploughman's Spikenard. Bab. 175. Banks and woods, frequent; Hollow Lane, etc.

PULICARIA. *Gaert.*

P. dysenterica, Gært. Yellow Fleabane. Bab. 175. Damp places, not uncommon. Whittington Park, etc.; abundant by the Thames.

BIDENS. *Linn.* Bur-Marigold.

B. tripartita, L. Bab. 176. Ditches, etc.; Wycombe Rye; abundant by the Thames and in ditches at Marlow.

B. cernua, L. Bab. 176. Pond near Wooburn Green; by the Wick near Chapel Lane; ditches at Marlow, etc.

ACHILLEA. *Linn.* Yarrow.

A. Ptarmica, L. Sneezewort. Bab. 176. Not common; meadow by the Marlow Suspension Bridge; by the Thames at Bourne End; field between Whittington Park and Lane End.

A. Millefolium, L. Milfoil. Bab. 177. Pastures, roadsides, etc.

NOTE.—Frequently occurs with pink flowers.

ANTHEMIS. *Linn.* Camomile.

† *A. arvensis*, L. "Rare." Bab. 177. In clover and cornfields, frequent, more especially near Well End and Little Marlow; also at Booker, and near Hazelmoor.

A. Cotula, L. Mayweed. Bab. 178. Fields, etc.

A. nobilis, L. Bab. 178. Gravelly places; Naphill Common, abundant.

MATRICARIA. *Linn.* Feverfew.

‡ *M. Parthenium*, L. Bab. 178. Waste ground near the Wick, Loudwater; walls, West Wycombe, Beaconsfield, etc.; roadside near the Union, Saunderton; occurs in the Marlow list.

M. inodora, L. Bab. 179 Cornfields, etc.

M. Chamomilla, L. Bab. 179. Cornfields and waste ground.

CHRYSANTHEMUM. *Linn.*

C. Leucanthemum, L. Oxeye. Bab. 179. Meadows, banks, etc.

† *C. segetum*, L. Corn Marigold. Bab. 179. Frequent in cornfields about Great and Little Marlow, and at Lane End; also casually (at Wycombe only) on waste ground.

ARTEMISIA. *Linn.* Wormwood.

A. vulgaris, L. Mugwort. Bab. 180. Hedges. etc.

TANACETUM. *Linn.* Tansy.

T. vulgare, L. Bab. 180. Rare in the district; in the sandy field near Marlow in which *Trifolium arvense* grows.

FILAGO. *Linn.* Cudweed.

F. germanica, L. Bab. 181. Clover fields and dry places.

F. minima, Fr. Bab. 181. Gravelly places; on the common at Tyler's Green; Wooburn Common; occurs also in the Marlow list.

GNAPHALIUM. *Linn.*

G. uliginosum, L. Bab. 182. Damp places and roadsides.

G. sylvaticum, L. Bab. 182. Heathy places in woods; Fennell's Wood; at Lane End; and near Prestwood.

SENECIO. *Linn.* Ragwort.

S. vulgaris, L. Groundsel. Bab. 183. In almost all situations.

S. sylvaticus, L. Bab. 184. Not common; Wycombe Heath; roadside, West Wycombe, Naphill Common; Wooburn Common; and near Loudwater.

S. erucifolius, L. Bab. 184. Sides of fields and railway embankments; near the Hill Farm; in the Quarry, Bisham, Berks; etc.

S. Jacobœa, L. Bab. 184. Waste ground, railway embankments, etc.

(To be continued.)

THE PIGMENT CELLS OF PLANTS IN SOME OF THEIR VARIED FORMS AND STRUCTURES.

A Paper read before the Queckett Microscopical Club, Friday, 22nd June, 1866.

BY N. BURGESS.

Of the many Fields in Nature which present themselves to our view, it is customary, if not with all, most certainly with most of us, to select those in which we take the greatest interest, or which afford us most pleasure. To the enthusiastic Geologist there is nothing so enchanting as the examination of old deposits and formations of the past, and though he

accounts himself to be a lover of nature, he cares but little for such things as Botany, or Zoology, or Entomology, or in fact any of the other sciences unless presented to him in a Geological garb or dress. Then, again the ardent lover of Botany, what does he care for Geology, unless brought before him in a botanical point of view? What does he see in stones, and rocks, and pebbles, collected with care in all parts of the world and brought together at a great cost both of labour and money, unless, indeed he may, here and there, see traces of extinct forms of vegetation. The same, or similar remarks, equally apply to all the other branches of science, we are all too apt to over estimate our favorite, or "pet" pursuits and undervalue the favorite pursuits of others. Now, I maintain we want all the ardent devotees to science; there is room for all; we need all, and the more of this class we have, the better it will be for all.—It is to such as these, that the world owes its onward progress in knowledge and discovery; it is to such as these, who can bring concentration of thought and purpose, to bear on one subject specially, that we may expect to reap continual fruits from the various fields in nature.

If my friends will pardon me I will just throw out here, a practical suggestion or two: let us all endeavour (in whatever path our tastes may lead us) to make close and minute observations of whatever we take in hand—let us avoid that general idea which some of our professional members are so fond of carrying out when they name slides as "Leaf of Plant,"—"Foot of Fly,"—"Section of Cane,"—"Tooth of Fish,"—let us one and all determine we will never have such a vaguely named object, under any pretence in our cabinets, this may lead in time to a better state of things in that direction, and if it does not, it is more than probable, that their services bye and bye may be dispensed with altogether.

Let us have every object minutely, as well as accurately named: for the want of this much time is lost, and very often it happens that most interesting facts are quite overlooked in this way—take for instance the Cuticle of the *Agave Americana,* (incorrectly called the American Aloe); suppose we get the *upper* surface of that plant's cuticle and proceed to closely investigate it, and another gets the under surface and proceeds to deal with it in the same way, both come to a result the one very different from the other.—And the most important fact of all would be in great danger of being overlooked altogether—the fact that the largest amount of respiration takes place from the upper surface of the leaf, and which would have been self evident, had both surfaces being examined together. And unless we are

equally careful in dealing with "Pigment Cells" we are quite as likely to be led astray. Asking your kind indulgence for so long an introduction to our subject, I come at once to the matter under our consideration this evening.

First.—Pigment Cells are contained in those parts of plants, generally called the flowers—botanically styled the "Corolla," the subdivisions of which are known as "Petals." It is to the corolla or petals then we must look for the various objects under consideration this evening. Pigment cells are different in their nature to those cells which contain the green colouring matter in the leaves of plants; this green colouring matter, called by botanists *Chlorophyll*, is not found in the outer cuticle of the green leaves of plants, for these cuticles are colourless in themselves, the green colour is found in cells underlying the cuticle altogether; but in "pigment cells," the various hues and shades of colours, are deposited, and found, in the cuticles of the petals themselves, varying both in size, and form, in almost every different order to which any plant may belong.

Now, to attempt to take even a glance at the world's Flora, would be quite out of place in a short paper, such as is usually read in this place, I shall therefore select a few, as affording distinctive marks, and characters, and serving as types of many others, but before I proceed with the subjects selected, I must first describe how they can be prepared for examination.

Secondly.—Pigment cells can, in a very simple manner, be prepared by any one, and as the way of preparing them may not be generally known, I shall have much pleasure in simply describing the manner, in which (I may say without egotism) I have been very successful. As the Pelargonium is a common, a well known, and withal a most beautiful object, we will take it as an illustration, and by way of example it will serve for the rest. We carefully select a clean and perfect petal, and, without bruising it in any way or manner, carefully pull it out of the calyx, so to speak, by the roots; we then lay this across the forefinger of the right hand, the point of the petal is then held tightly by the thumb, the opposite end of the petal is held tight on the other side by the second finger; with the left hand, now by means of the thumb nail, we begin to scrape at the root end of the petal very gently, and if properly done, the part scraped up may be gently raised and stripped off, and then can be floated on to a glass slide in a saucer of water; the floating in water is not, however, the best way of affixing the cuticle to the glass, the cells containing the colouring fluid being so thin and in stripping off are so liable to be ruptured, that when placed in water, they often lose much of their colouring matter, which is a great objection to this mode

—and therefore the plan I pursue is as follows :—so soon as I have partially stripped off the cuticle, say about half way, I take a glass slip made perfectly clean and with both hands take the petal and place it in its partially divided state, resembling the letter V inverted, on the slip; each end of the petal now is held tightly down on the slip by means of the two thumbs and carefully pulled in opposite directions, the result is, the filmy cuticle spreads itself gently over the slip and by means of a camel's hair pencil or the thumb, can be laid perfectly flat, and is ready for examination. This when perfectly dry can be covered with a piece of thin glass and so be preserved, or what is better a drop of Canada Balsam can be placed on the cuticle, and by means of a spirit lamp be thoroughly heated and a thin glass cover placed over the whole, and when finished off we have a permanently mounted slide of great beauty. We will assume that the film taken off was the upper surface of the petal, we now see a perfectly white surface immediately under the part stripped off, and turning the petal over, we next observe another coloured surface at the back, by which we learn the petal is composed of three distinct and separate cuticles, or perhaps more correctly speaking, a cuticle on each side, divided by an interstratum of cellular matter; in one petal of the Cactus family which I had thus divided, I observed in the cellular matter occupying the inner part of the petal, several spiral fibres clearly showing the nature of this part of the petal, and the use of the same, in contradistinction to the Pigment cells on either side. The next process to adopt is to take a petal precisely like the first, from the same part of the flower, and laying it with its under surface upwards, proceed as in the first instance; if successful, you have now both sets of Pigment cells. I prefer taking the upper surface from one petal, and under surface from another, as being in practice much more easily done than taking both cuticles from one petal, which is often I find almost an impossibility to do, and in some special cases I have not been able to succeed at all. It will now I trust be obvious that to correctly examine "Pigment cells" under the microscope, we must not take the entire petal and mount it in the state we find it, but that it must be separated into its several parts, each part being taken in detail.

An interesting question arises here; there are Botanists who are of opinion that the petals and flowers of plants are only another state of the green leaf, turned by a process of nature in another direction, and others again who maintain that a flower is a flower, altogether distinct from leaves and so forth. To those of our friends (if there be any) who are engaged in the study of "Morphology," as this part of vegetable physiology is called,

I point to the full use of the Microscope in the pursuit of this subject, and, I think, close research here can for ever settle this disputed question. So far as I have thought on this matter, I am of opinion—this opinion it is true may be modified on further examination—that the petal of a plant is as distinct, essentially from a leaf, as any two organs found in the human frame can possibly be. And although "dame nature" may occasionally seem to forget herself, and, in a fit of abstraction, produce a monstrosity, yet she shows a uniformity in her actions too widely spread abroad, I think, in all her doings for us to be too hard upon her, when now and then she plays off one of her unaccountable freaks, just to set us "all by the ears." The opinion I have expressed here, I believe, is opposed to the views of some of our great Botanists, including the late great Dr. Lindley, and the living Dr. Carpenter, still I must dare, in these days when liberty of thinking is not considered to be a crime, to act and think for myself, even if in doing so I clash with wiser and greater men, than I can either expect or even hope to be myself.

Classification.

Pigment cells then I shall divide into four great divisions :—

First—Cells beautiful in form and colour.

Second—Cells simple in form and colour.

Third—Cells singular in form and beautiful in colour.

Fourth—Iridescent or glistening cells.

These rough divisions will serve to classify all kinds of cells, probably, that may come under our notice.

Division I.

From our first division then of cells, beautiful in form and colour—as a type I select the well known one, the Pelargonium.

This affords us plenty of variety to work upon. Some plants produce light coloured flowers, others dark, and between these are found almost every possible shade of colour. We will now take a film stripped off in the way previously described, and submit it to a close examination : we find first a thin film or membranaceous cuticle, so to speak, of one uniform colour ; upon this membrane, next, we notice some very beautiful tracery work, of rich colour and form, this tracery work takes the form of a hexagon in outline. One light fringe edged leaf, (the petal I mean) which I have minutely examined, I found to form cells of that shape which a true hexagon would form if traced within a perfect circle, and each division or side of which was of equal length ; the sides of this hexagon, it must be borne in mind, however,

are not straight (like cells of the honey comb) but assume the general appearance of a six sided figure—the size of these cells I found to be, taking the mean (or average) of four distinct cells selected as affording a good sample of the rest, one-twentieth of a millemetre long, and one-fourteenth of a millemetre wide, in some cases the width and breadth were about equal; in the centre of this there was a dark nucleus, with thirty-one lines (mean number,) radiating towards the cell walls around it,—this nucleus has been by some called the stoma of the petal. This view I do not endorse, I am rather inclined to form an opinion that it is the reservoir for colour or perfume (among other purposes) or even both. This nucleus presents the general appearance of an insect with many legs around it, lying on its back. The wall cells around this nucleus, however, are the great seat of colour—they are hollow vein-like processes, filled with a colouring matter; on these side veins by close examination, under an eighth may plainly be seen a number of spine like forms (Dr. Carpenter calls them hairs,) hollow and filled with colour; these incline inwards, somewhat like the teeth in the "*peristome*" of some of the mosses; these are not observed, however, with the lower powers. I noticed sixteen or seventeen of these "teeth" or hairs in several of these cells.

From another petal of a deep crimson colour, I obtained very different results; here the cells were one-twentieth of a millemetre long, and only one-tenth of a millemetre wide, in proportion only one half of the length in width, here again, the nucleus contained seventy-eight lines and eighty-six lines respectively in two cases where I counted, radiating from it, the nucleus also was more elongated than in the other case. For perfect examination, it is best I find, to have some petals put up dry, and some in Balsam, as each way admits of different kinds of observation being carried on with advantage, which cannot be found when the pigment cells are prepared in one way only.

An interesting question arises here which would afford matter for observation and discussion; this coloured fluid, how is it elaborated?—What is its special use?—For it is surely useful as well as ornamental. Again is it secretory, excretory, or circulatory? I rather lean to the idea of it being a secretion, having circulation confined within given limits.

Division II.

Cells Simple in Form or Colour.

To illustrate this we will take the common Buttercup, *Ranunculus*

acris, of our English meadows—here we have one colour only to deal with, yet withal, there are many marks of beauty to trace in this simple flower. Here we have two yellow membranaceous cuticles lying on either side of a white interstratum of cellular matter, again, as in the case of all the plants so far as I have gone as yet, in the process of dissection. But, in this case I notice one difference I did not observe in the Pelargonium, in that both cuticles were very similar in their shape and marking of the cells, the chief difference consisting mainly in depth of colour; here I noticed a difference in the marking, both sides not being alike; on the upper surface I find the cells to be more clearly defined than on the under, and to differ in their form. On the upper surface being viewed, under an inch or half inch object glass, we have an appearance as follows:—the membrane or cuticle is like a thin film of yellow gelatine, on its surface running about in all directions are veins having no clearly defined form, the average mean size of which is about one-twenty-third of a millemetre in length or breadth, they are somewhat in form to be compared to the markings, as they appear to the eye on a brass coat of mail, the outline in that form is to the eye like beautiful laquered brass wire raised on the yellow membrane—if the cuticle is not laid on the slip entirely flat, the folds have a still more beautiful appearance than those parts lying perfectly flat,—now this wire-like network has also another appearance rather difficult to describe in words, if we were to take a piece of one of the wire covered strings of a violoncello, and pull that piece of wire out as straight as possible, it would have a continual successions of curves; now, imagine with this wire in the state just shewn, a piece of network, the meshes of which were shaped in the coat-of-mail-like form before described, and you have something of this upper film before your mind's eye—I should here state the best way to get this effect, is only to be obtained by viewing this as an opaque object,—in the centre of these cells we have no nucleus as in many other plants. The under surface of the petal is not so beautiful as the upper, but the vein like cells are more regular in size and shape, and are longer than they are wide. I would here remark in ending the description of this flower, what the use of the microscope is in explaining cause and effect, the flower by unaided vision is seen to be more glossy (almost varnishable) on the upper surface, than on the underside, the microscope at a glance shews *how* this effect is produced.

The second illustration in this division of *Cells simple in Form and*

Colour, will be the common field poppy, *Papaver Rhœas*. Here we have a simple red film with raised venations running in almost parallel lines, slightly narrowed ; at each end the length of these cells I find by measurement to be one eighty-seventh of a millemetre in width, and about one-ninth of a millemetre in length, average mean of several different cells—here again, we have no central nucleus—but a plain network-like form of cells in form somewhat to be compared to an elongated parallelogram slightly compressed at both ends.* The wall cells here present a little variety, they appear on close inspection with the lower powers to be like several veins piled one upon another in a slightly serpentine form, but with the higher powers, one-eighth for example, the top has somewhat the appearance of the links of a chain cable—this latter appearance perhaps requires further observation before it is to be fully accepted as a matter of fact.

Division III.

Cells Singular in Form and Beautiful in Colour.

This division I shall illustrate by two examples, both taken from plants the petals of which to the eye present a velvety appearance. The first is the pansy, *Viola tricolor*, here, viewed simply in its flat form, by transmitted light the appearance is, cells of a roundish ovate form, inclining to the hexagonal, of one-seventeenth of a millemetre long, and one-twentythird of a millemetre wide. The cell walls are very much in appearance like the Pelargonium only more clearly defined—hollow and filled with dark colouring matter (this petal of course was one of a dark colour, had it been a light one, the pigment cells would have been filled with a light coloured fluid) around the top edge of this wall I counted so many as nineteen and twenty clear wart-like protuberances of a transparent, or semi-transparent nature, not inclining inwards as in the Pelargonium, but as nearly as possible uniformly distributed at equal distances along, or around the cells ; in the centre of these walls, a nucleus is seen, having many lines radiating in all directions, towards the walls of the cells, and if our observations went no further, our description would be at an end, after stating both surfaces were very much alike. But, taking our cuticle in section, we now see in regular order, one continued row of pyramid-shaped bodies having a coloured apex, in which is seen a coloured fluid, and from this point streaming downwards,

* The narrower ends of the cells as compared with the centre width, is in the proportion that one bears to three.

small veins evidently for the purpose of conveying this coloured fluid into the wall cells around. Now here we make this important discovery, that that which some have called the stomata, of the petal, turn out to be no stomata at all, and that which appeared to be stomata in the form of a nucleus, when only examined by transmitted light, now, in the correct course of examination shews up many new, and most important facts. One of which is this, the manner in which the velvet-like appearance on the petals of plants is mechanically brought about. You have here then a fact before your eyes, which enforces more powerfully than any words which I can use, the importance of making minute observations as I intimated in the early part of this paper.

The second case, or example in this division, will much resemble the last—it is from a petal having a velvet-like appearance. The common French marigold. You have here again, a roundish hexagonal form of very fine or narrow outline, one-twelfth of a millemetre from side to side both in length or breadth.—(mean measure of six cells.) On examination by transmitted light, this presents many singular forms in the process of getting the correct focus, first we see a series of darkish spots, then a nucleus, then lines from this nucleus, then the ordinary appearance of a nucleated cell—this, like the pansy, can only be correctly seen in section—as the pyramid shaped bodies which cover the surface can only be perfectly seen in that way. The under cuticle has no pyramid shaped bodies on it. We now come to

Division IV.

Iridescent or Glistening Cells.

Example the Common Tulip.

Here we have a simple membranaceous cuticle having sets of cells of simple formation yet with a peculiarity added to them not found in any of our other divisions. These cells in shape are as nearly as possible, very lengthened hexagons—or elongated parallelograms, having pointed ends—no nucleus can be seen of any kind or form, in any of these spaces which are one-third of a millemetre long, and only one-thirty-second of a millemetre broad. There is no special kind of marking in this once almost worshipped flower. But it has a special singularity notwithstanding its simplicity of structure, and this singularity is its iridescence, which is caused by a number of warted-like processes at the end of each cell, and occasionally one or two is found along the sides; these by

varying the light used in illuminating the object, are seen to be more transparent than the other parts of the cells and if viewed under polarized light are seen much more distinctly.

In bringing this paper to a close I must say a few words on the examination of objects. It is well I find to use almost every power of magnification we have, in turn, as one object glass will sometimes shew one thing, and another object glass will bring out another ; again the eye pieces may be also varied, using a deep eye piece with a low power, and a low eye piece with a high power, and again both high powers in the eye piece and object glass together, and again low eye pieces and low powers in the object glass together. Then as to illumination, this can be changed and changed about, one while using the object as a transparent one, then again as an opaque one, also with the parabola, angular light, excess of light, almost total absence of light, and many other ways, each of these may be made to yield some extra facts in the school of examination.

And last the most of all importance—*Polarized Light.* I cannot say *too much* about this, its merits having been greatly overlooked—I have for a long time considered that unless I have used polarized light upon any object I have had in hand for examination, that I had only partially seen it, and I would advise all our friends to follow out the same course, and then I dare predict much greater knowledge on every subject will be the sure result—so far as the Pigment Cells of Plants are concerned, they do not owe much to Polarized Light for enhancing their beauty, but still I can fearlessly assert I should not have been able so clearly to state many of the facts contained in this paper but for the use of it,—and to any of our friends who may care to investigate the nucleus, with a view to find out its nature and use, Polarized Light at once tells us, in unmistakeable language the way by which this can be ascertained.

I regret that so little can be done in a short paper like this, but should this have proved to be of any interest to our friends generally, I may then perhaps be allowed to say they may take this as a first instalment of a debt which, let us all feel individually we owe, to the Queckett Microscopic Club.

NOTES ON SOME FORMS OF *CRATÆGUS.*

C. P. Hobkirk.

In a former Paper on this subject, *(Naturalist, Vol. iii. p.* 12,*)* I called the attention of our local botanists to the description of two forms of *Cratægus*, as given in the Continental *floras*, viz. :—*C. oxyacanthoides*, Thuil., and *C. monogyna*, Jacq., and, whilst requesting them to devote some attention to the forms found in this country, I stated my own desire to be furnished with specimens from their various localities. To those gentlemen who have kindly acceded to my request, by sending specimens, I would here beg to tender my warmest thanks, more particularly to J. G. Baker, Esq., F.L.S., of Kew, and the Rev. W. T. P. Meade King, of Atherstone, the former of whom lent me the whole of the dried specimens (English and Foreign) in his own herbarium, and sent me fresh flowering specimens of all the forms found in the Royal Gardens at Kew ; the latter, some fifty fresh specimens of the forms found in his immediate neighbourhood. Partly in fulfilment of my promise (l. c. p. 14.) and partly at the request of Mr. Baker, after having spent much time in a careful study of the specimens kindly sent to me and of those growing near Huddersfield, I am induced to give to the readers of the *Naturalist* the result of my examinations so far as they have at present gone, with the hope that they may have some interest attached to them, and may lead others to a further study of these forms, and thus either confirm or modify my opinions.

Linneus places the genus *Cratægus* in his class Icosandria, order Digynia, and thus describes *C. oxyacantha*, " C. foliis obtusis subtrifidis serratis." (Syst. Nat. 1057, A.D. 1737.)

C. monogyna, Jacq., is separated from the above in the the following terms :—

" At vero in C. monogyna folia sunt glaberrima magisque nitentia : tum etiam pleraque valde profunde secta in lobis quinque vel tres acutis et aut integerrimos aut ad summitatem paucis dentibis serratis. Pedunculi nullis villis pubescent. Laciniæ calycis semper cum in flore tum in fructu ita reflectuntur totæ quantæ, ut ad germen fructumque arcte apprimantur postica sui parte. Stylus unicus ad est constantissime, ortus e centro germinis, nunquam mihi variare visus in ullo flore : hinc etiam fructus gestat semen aeque constanter unicum, idemque subrotundum,

nec ullo latere applanatum. Sive igitur offerat quis alterutrius florem, sive folium aut fructum, momento sine hæsitatione ulla speciem diagnoscemus." (1) (Jacq. Floræ Austriacæ, Vol. iii. p. 51. dato 1775. fig. vol. iii. t. 292.)

From the above description it would appear that the author's specimen was somewhat different to those now described under his name—as he states that the peduncles are *not* hairy, whereas in the more modern descriptions this is given as one of the principal characters by which it is separated from *oxyacanthoides*—thus Boreau writes, "Corymbes latèraux, ordinairement pubescents." (Fl. du Cent. ii. p. 231,) and Prof. Babington, "peduncles and calyx villose." (Man. Ed. 5. p. 117.)

Thuillier in his Flore des Environs de Paris, (1824, p. 245-6.) makes the principal differences of his *oxyacanthoides* to be in the leaves thus :— "C. OXYACANTHA. C. foliis obtusis subtrifidis serratis."

Epine blanche. Feuilles obtuses, dentées en scie et divisées en trois. Fleurs blanches.

OXYACANTHOIDES. C. spinosa, glaberrima foliis subrotundo-ovalibus, basi acutis breviter 3 vel sub-5 lobis : lobis rotundatis." (2)

In the "Linnea" vol. iv. p. 379, are descriptions of three Cratægi by Dr. C. A Fingerbrush, as follows :—

1.—C. KYRTOSTYLA.

C. spinosa, foliis utrinque glabris vel subtus nervis ciliatis, floribus corymbosis monogynis, stylo deflexo, calycibus hirsutis, laciniis oblongis acuminatis patentibus apice obtusis, fructibus oblongis basi faveolatis, nucleum 1, ovato-oblongum, fusco-brunneum, dorso convexum 3-4 sulcatum, facie obversa rima longitudinaliter infra medium umbilicata instructa, forentibus."

(1) But in *C. monogyna* the leaves are very glabrous and more shining, very deeply divided into three or five acute lobes, and either entire, or serrate at the summit with small teeth. Peduncles without hairs. Sepals always both in flower and fruit fully reflexed, with their backs closely appressed both to the germen and the fruit. Style constantly one, springing from the centre of the germen : I have never seen this vary in any flower. The fruit bears one seed, also constant, which is sub-rotund and not flattened at the side. Whether, therefore, we consider the flower, the leaves, or the fruit, I have not a moment's hesitation in separating this species.

(2) *C. oxyacantha.* Leaves obtuse, subtrifid serrate. White Thorn.

C. oxyacanthoides. Spiny, leaves glabrous, subrotund-oval, base acute, shortly three or sub-five lobed, lobes rounded.

2.—C. MONOGYNA.

C. spinosa, foliis basi cum petiolis subtusque in nervis subciliatis, floribus corymbosis (plerumque) monogynis, stylo recto, calycibus glabris vel subciliatis, laciniis oblongis acuminatis, reflexis apice obtusis, fructibus globosis, nuclea 1-2 oblongo-ovata, brunnea, dorso convexa 2 sulcata, sulcis infra medium evanescentibus, facie obversa planiuscula longitudinaliter sulcata, basin versus umbilicata, includentibus.

3.—C. OXYACANTHA.

C. spinosa, foliis nervo medio basique cum petiolis pubescentibus, floribus corymbosis 2-3-gynis, stylis erectiusculis, calycibus glabris, laciniis plano-expansus acuminatus, acutiusculis, fructibus subglobosis, nuclea 3, ovata pallide fusca, dorso convexa 2-sulcata, sulcis infra medium evanescentibus, facie obversa excavata-planiuscula, striæ longitudinali angulato-prominula forentibus." (3)

Reichenbach. (Fl. Excurs. 629) describes, *C. apiifolia* (Medicus sub Mespilo) "quasi hybrida inter oxyacanthoides-monogyna est, glabra, foliis profunde 3-5. partitus, floribus magnis illius monogynis tamen sequentes."

The above with the descriptions, &c., named in my previous article comprise almost the whole of the literature relating to our English species that I have been able to obtain. Stendel's book is a mere list of names, Koch only refers briefly to Fingerbrush's paper. One thing however, appears clear, viz., that there is considerable confusion connected both with the nomenclature and synonymy of the various forms. This seems to arise partly from some authors clinging to the Linnean axiom of confining their diagnosis within a limited number of words, thus necessitating

(3.)—*C. Kyrtostyla.* Spinous. leaves glabrous on both sides, or ciliate on the nerves beneath, flowers corymbose, monogynous, style deflexed, calyx hairy, sepals oblong acuminate patent apex obtuse, fruit oblong honey-combed at the base, nut one, ovate-oblong, reddish brown, back convex 3-4 furrowed, obverse face longitudinally cleft, umbilicate below the middle.

C. monogyna. Spinous, leaves sub-ciliate at the base, on the nerves beneath, and on the petioles, flowers corymbose (for the most part) monogynous, style straight, calyx glabrous or subciliated, sepals oblong acuminate reflexed, apex obtuse, fruit globose, nuts 1-2, oblong-ovate, brown, convex on the back two-furrowed, furrows vanishing below the middle, opposite side flattish longitudinally furrowed, umbilicate towards the base.

C. oxyacantha. Spinous, leaves hairy at the base, on the midrib and also the petiole, flowers corymbose 2-3-gynous, style almost erect, calyx glabrous, sepals flat spreading, acuminate somewhat acute, fruit sub-globose, nuts 3 ovate pale brown, convex at the back and 2 furrowed, furrows vanishing below the middle, obverse, face concave flattened-with prominently angular longitudinal striæ.

their ignoring all but the most prominent characters; and partly from a want of well authenticated specimens of other authors for comparison. I regret that I am also in a great measure subject to the latter want in my own remarks, though not altogether so, as will appear in the sequel.

In comparing the specimens I have by me, and descriptions as above given, I have been somewhat surprised at the great variation in some of the characters; more particularly in the size, shape, and hairiness of the leaves and petioles, and in the villosity of the peduncles. Most of mv specimens have the leaves more or less hairy on both sides, one form only of *oxyacanthoides*, from Algeria having them glabrous on both sides. The direction of the nerves however seems a very persistent character, being always convergent in those species labelled *oxyacantha* or *oxyacanthoides*, and divergent in those named *monogyna*. The hairiness of the sepals seems also a more persistent character in separating the two principal forms than that of the peduncles.

(To be continued.)

A DAY AT CLIFTON.

On a hot and sultry day in May in company with my indefatigable friend, Mr. W. Nelson, I found myself on the far famed Durdham Downs near Bristol. They are rather extensive and picturesque, being sprinkled with trees, chiefly hawthorn which appear as though enveloped in merry mantles, from the profusion of their flowers, while the numerous roads that intersect the Downs are sheltered from the sun's rays by large timber trees.

In some hollow places we found by diligent searching *Pupa umbilicata*, *Clausilia rugosa*, *Helix caperata*, and its distinctly marked variety *ornata*.

A quarry by the roadside lay temptingly before us, but our captures at it were but meagre, *Helix hispida*, *Helix caperata*, *Helix nemoralis* and the variety *hybrida*.

We then crossed the downs to Clifton, and descended the hill to the river, by a footpath embowered with trees, its coolness being grateful and refreshing, from contrast with our walk across the downs under the rays of the hot sun.

On reaching the river side we went towards the Suspension Bridge at Clifton, as we approached it, the cliffs became more prominent and inacces-

sible, but nothing daunted we commenced the ascent. Specimens of *Lycæna Icarus*, and other butterflies flitted past us, but as our object was shells and not butterflies, they only met with a passing notice. The sun's rays descended almost vertically upon us, the perspiration streamed down our faces with our exertions, so that when we reached the friendly shade of an aged hawthorn we were too exhausted to proceed further, till we were somewhat rested.

After a short time, we commenced our ascent, till we reached the foot of some cliffs, when we immediately began to collect *Pupa secale*, we found it to be in profusion at the foot of the cliffs, and some few attached to the face of them; *Helix rupestris* was not scarce in the chinks and crevices, while close to the ground, sheltered by the vegetation, *Helix lapicida* and *Pupa umbilicata* were rather common. At the roots of grass growing in the crevices of the rocks we obtained some fine *Achatina acicula*.

Moving to some moss-covered rocks at a little distance, we found *Cochliocopa lubrica*, var. *lubricoides* and *Helix pulchella*, and at their base and among stones we found *Helix virgata*, *Helix caperata*, var. *ornata*, *Clausilia rugosa*, variety *Everettii*, and some unusually fine *Zonites cellarius*.

Reports of Societies.

Todmorden Botanical Society.—The monthly meeting of this society was held on Monday, August 6th. The president Mr. Stansfield, in the chair.—Samuel Hall, Esq., Forest House, Bacup; Samuel Barlow, Esq., Stakehill, near Middleton; Mr. J. H. Grindrod, Union-street, Todmorden; Mr. W. H. Roberts, Market-place; Mr. Wm. Dean, Meadow-bottom; and Mr. J. Jackson, Victoria-road, were admitted members. The meeting was of unusual interest, and there was a good attendance of members, including a fair proportion of those more recently admitted. On the table were a great number of specimens of flowering plants, and ferns, both British and exotic, some of which were exceedingly rare. The president and vice-president gave an interesting account of the recent tour in Yorkshire, Teesdale, &c. The different members of the party were of the most agreeable character, so that though the "finds" (to use an expression well understood in these reports) were neither numerous, nor exceptionally rare, the journey on the whole was pronounced as one of the most pleasant and thoroughly enjoyable our Todmorden botanists have ever undertaken. Todmorden however, must not lay claim to all the credit, as Bacup was well represented by Mr. Aitkin, Manchester by Mr. Rodgers, and Blackburn by Mr. Pickup. Amongst a host of plants collected, we may name a few of the more select:—*Gentiana verna*, *Dryas octopetala*, *Kobresia caricina*, *Viola amœna*, *Carex capillaris*, *Orchis latifolia*,

Orchis maculata, var. *alba*, *Potentilla fruticosa*, *Equisetum variegatum*, *Lastræa alpina*, a *Viola*—probably new to Britain—&c. &c. Mr. Patman gave a short account of the Cliviger excursions on Saturday last, when one of the party had the good fortune to meet with a magnificent plant of the very rare and curious *Athyrium filix-fœmina* var. *stipatum*; and which, so far as we can ascertain, has only been collected once previously, and that near Dolgelly, North Wales. The variety of Lady Fern under consideration, though wanting in the charming gracefulness of some of the more lax and slender forms, is yet full of interest in other respects; it seems, in fact, as if to compensate for somewhat abbreviated stature, Dame Nature had suceeeded in the endeavour to condense and concentrate the material at her disposal to the thickness and density of several fronds, but maintaining the while all the symmetry and proportion of outline for which she is so pre-eminently remarkable. Another very curious *Athyrium* was collected on the same excursion. In this plant the points of all the pinnæ, as well as most of the pinnules, were curiously contracted and incised; the extreme apex of all the fronds, too, was similarly affected, giving the plant a peculiarly fringed and altogether singular appearance, quite unlike anything we had previously seen. Should this form prove permanent it will add another to the very many beautiful varieties of Lady Fern which have been collected in this neighbourhood. We must not omit to notice a frond of another Lady Fern brought to the meeting, and collected within the last few days, near Bolton Woods, by T. Staley, Esq., of Rochdale. This variety gives every promise of being quite identical with the charming Athyrium known as *Vernoniæ*, only one plant of which has been recorded as found growing wild. We congratulate Mr. S., as well on his good fortune as his perseverance. *Apropos* of the excursionists it may be stated that two of the society's members (Mr. A. Stansfield, jun., and Mr. J. Horsfall, of Rochdale) have had a tour of several weeks' duration in the Scottish Highlands. The former has not yet returned. Several most interesting letters have been received, but there was no time to read them to the meeting. They have forwarded a goodly number of the more rare Scottish plants. An account of the journey may form a subject of a paper at some subsequent meeting. The excursion to Bolton Woods will take place on Saturday, September the 1st, and not on the 28th of August as notified on the cards.

(Communicated.)

Norwich Naturalists' Society.—Reports of Meetings. At a meeting held on June 4th, 1866. Mr. J. Perry in the chair. Mr. T. E. Gunn, exhibited a female example of the Golden Oriole, *Oriolus galbula*, killed on the 28th of April last, at Chediston, near Halesworth, in Suffolk. Also, specimens of the Smooth-tailed Stickleback, *Gasterosteus leinrus*, which he obtained by disection from the throat and stomach of the Spoonbill captured on the 2nd of May last, on Breydon Water, Great Yarmouth. *See Zoologist, for May* 1866, *page* 264. He also read a communication from Dr. J. E. Gray of the British Museum, relative to this species of Stickleback in which it appears he considers it only one of the many varieties of the common Three-Spined. Mr. J. J. Rice exhibited a case of minute Coleoptera. Mr. Gunn exhibited several specimens of the Swallow tail, *Papilio machaon*, shewing very irregular markings on the wings.

June 18th. Mr. J. Perry in the chair, Mr. T. E. Gunn, exhibited a very curious specimen of an hybrid between a Bantam and Baldpate Pigeon, bred in Norwich; it is supposed to be the first example recorded. Boxes of fresh captured specimens of Coleoptera, Lepidoptera, and Hymonoptera were exhibited by Messrs. J. Perry, J. J. Rice, H. Hickling and T. E. Gunn.

July 16th. Mr. J. Perry in the chair. New Member, Mr. Robert Moore of Norwich. Mr. J. Perry read an extract from a paper on the Viviparous fish, *Ditroma argenta*, discovered in the Pacific Seas. Mr. R. Gunn, exhibited fresh taken examples of the Norfolk Plover, *Œdicnemus crepitans*, eggs obtained at Swafham, and also an egg of the Turtle Dove, *Columba turtur*, no larger than that of the Sparrow. Boxes of Lepidoptera and Coleoptera by Messrs. J. Perry, H. Hickling, W. Lumb, and J. J. Rice.

July 30th. Mr. J. J. Rice in the chair. New Members. Messrs. William Willis and William Bacon, of Norwich. Mr. T. E. Gunn read a paper on the architecture and construction of birds nests, illustrated by specimens of several species including the Wren, Longtailed Tit, Nightingale, Chaffinch, House Sparrow, Lesser Redpole, Sedge and Reed Warblers, &c., all taken this season in this locality, and also a nest of the Humming-bird from South America.

Queckett Microscopical Club.

The annual General Meeting was held at University College, on the 27th July. Dr. Lankester, President in the chair. The report of the committee announced that one hundred and fifty three members had been enrolled during the year,—that a class had been formed under the direction of Mr. Suffolk for instruction in the use of the microscope,—that Field Excursions had been successfully established,—and that in every respect the Club was in a prosperous state.

The President delivered an address admirably suited to the occasion, in the course of which he congratulated the members on the successful result of their labours. Much had been done already in microscopical science, but as yet we were only on the threshold, and vast fields for research were still before us. He impressed upon yonng men, while aspiring to new paths of investigation, not to despise old paths which had been trodden by the veterans who had preceded them. That even in old familar subjects, novelties were to be found, which would amply repay the trouble of looking for them, as it was only by thoroughly working out a subject they could hope to enlighten themselves or contribute something for the benefit of others.

The following officers were elected for the ensuing year :—President, Ernest Hart, Esq., ; Vice-Presidents, Arthur E. Durham, Esq., F.L.S., Dr. Tilbury Fox, M.R.C.P., William Hislop, Esq., F.R.A.S., John K. Lord, Esq., ; Treasurer, Robert Hardwick, Esq., F.L.S., ; Secretary, Witham M. Bywater. Four members of committee :—P. Le Neve Foster, Esq., C. J. Breese, Esq., H. F. Hailes, Esq., Joseph Smith, Esq.

After other business had been disposed of, Mr. Bockett exhibited and explained an ingeniously contrived lamp, constructed to carry its own reflector and condenser. The whole can be packed into a small box which also holds an extra chimney glass and shade, thus rendering it extremely portable.

Seven members were elected and the proceedings terminated.

News.

Golden Eagles.—A pair of Golden Eagles recently took up their abode in a cliff on the shores of the Isle of Skye, and fired the ardour of two young sportsmen, who resolved to destroy them. An opportunity occurred on Thursday last, when both birds were shot. We are of opinion that, denying themselves the occasion for an unworthy boast, the young men would have been doing a more commendable thing had they spared these beautiful and now rare birds.—*Scotsman.*

Original Articles.

A FLORA OF HIGH WYCOMBE.

By James Britten.

(Continued from page 52.)

S. aquaticus, L. Bab. 184. Damp places, and by streams.

Carlina. *Linn.* Carline Thistle.

C. vulgaris, L. Bab. 186. Dry places, frequent : Keep Hill, etc.

Arctium. *Linn.* Burdock.

A. Lappa, L. [I have not yet ascertained which of the five species given in the Manual occur with us, but I believe that we have *A. majus*, Schk., and *A. minus*, Schk.] Waste places, roadsides, and woods. *A. minus* occurs in the Marlow list.

Centaurea. *Linn.* Knapweed.

C. nigra, L. Bab. 188. Meadows, roadsides, and borders of fields.

Note.—Occasionally occurs with white flowers. The radiate form (? *C. nigrescens*, Ang. *not* Bab.), is here equally common with that usually observed.

C. Cyanus, L. Cornflower. Bab. 188. Cornfields, frequent about Little Marlow ; cabbage field near Handy Cross ; cornfield by the side of the road from Park Lane to Lane End ; "cornfields at the top of Cookham Down (Berks.) etc." *Phyt.* i. 989. *O.S.*

C. Scabiosa, L. Bab. 188. Roadsides and borders of fields.

Note.—A pretty white-flowered variety sometimes occurs.

Onopordum. *Linn.* Cotton Thistle.

‡ *O. Acanthium*, L. Bab. 190. A fine plant in the hedge, and another in the field, adjoining the Ham Farm, past West Wycombe, from the garden of which it probably escaped.

Carduus. *Linn.* Thistle.

C. nutans, L. Musk Thistle. Bab. 190. Fields and waste ground.

C. crispus, L. Bab. 190. Roadsides and waste ground, not very common ; near Hughenden Church ; West Wycombe ; waste ground, Wycombe, occasionally ; roadside near Marlow.

β C. acanthoides, L. Mr. Mill has recorded this as being "frequent" about Marlow ; and Mr. Melvill informs me that it grows "on a hedgebank between Marlow and Wycombe, near an old chalk-pit on the right hand

side." *C. crispus* was, however, probably intended in both instances, this having been frequently united with *C. acanthoides* under the latter name. The true *C. acanthoides* I have only observed by the railway near Loudwater; and by the roadside at West Wycombe.

C. lanceolatus, L. Bab. 191. Roadsides and waste ground.

NOTE.—Occasionally occurs with white flowers.

C. arvensis, Curt. Bab. 191. Fields, roadsides, and waste ground.

C. palustris, L. Bab. 191. Waste places and meadows.

NOTE.—A white-flowered variety is here, as elsewhere, common.

C. acaulis, L. Bab. 192. Dry heathy ground, meadows, roadsides, etc.

NOTE.—At Whittington Park I once found a specimen with a stem nearly a foot high.

SILYBUM. *Gaert.* Milk Thistle.

† *S. Marianum*, Gaert. Bab. 192. By the roadside at Well End; * by the Oxford road, just outside Wycombe; * waste ground at Bourne End; * Bradenham.

LAPSANA. *Linn.* Nipplewort.

L. communis, L. Bab. 193. Fields and waste ground.

NOTE.—A very singular specimen occurred in a field near Tinker's Wood, Downley, in 1864, in which each head of flowers had, growing from its centre, from three to six smaller heads, all perfectly formed.

CICHORIUM. *Linn.* Succory.

C. Intybus, L. Bab. 193. Roadsides and borders of fields.

HYPOCHŒRIS. *Linn.* Cat's-ear.

H. radicata, L. Bab. 194. Fields and waste places.

APARGIA. *Schreb.* Hawk-bit.

A. hispida, Willd. Bab. 194. Meadows, etc., not very common; Hughenden Park, etc.

A. autumnalis, Willd. Bab. 194. Pastures, etc.

TRAGOPOGON. *Linn.* Goat's-beard.

T. minor, Fries. Bab. 195. Borders of fields; and in meadows by the Thames.

‡ *T. porrifolius*, L. Salsafy. Bab. 195. "By the side of a private road from Snakely's Mill to the high road, Loudwater." *MS.*

PICRIS. *Linn.*

P. hieracioides, L. Bab. 195. Dry woods, not unfrequent; Hughenden woods, etc.

HELMINTHIA. *Juss.* Ox-tongue.

† *H. echioides*. Gaert. Bab. 196. Plentiful in a clover-field near Hughenden Park, 1865.

LACTUCA. *Linn.* Lettuce.

L. virosa, L. Bab. 196. Abundant on the steep gravelly banks on the left of the road going up White Hill, towards Beaconfield.

L. muralis, DC. Bab. 196. In woods and on old walls.

LEONTODON. *Linn.* Dandelion.

L. Taraxacum, L. Bab. 196. Common in almost every situation.

β. lævigatum, DC. Walls at Bradenham, etc.

SONCHUS. *Linn.* Sowthistle.

S. oleraceus, L. Bab. 197. Fields and waste places.

NOTE.—"There were two specimens, growing in a wet hollow at the top of Bisham wood, [Berks] of an enormous size. I should think they were at least eight feet high, and were proportionately large in all their parts." *Phyt.* i. 989. *O.S.*

S. asper, Hoffm. Bab. 197. Fields and waste places.

S. arvensis, L. Bab. 197. Cornfields and borders of fields.

CREPIS. *Linn.* Hawk's-beard.

* *C. setosa*, L. Bab. 198. In clover fields: near Hughenden Park, with *Helminthia*; and by the field path from Wycombe to Tyler's Green.

[*C. fœtida*, L. "Rare." Bab. 198. "Formerly grew, though very sparingly, in Bisham wood; [it] does not appear to grow there any longer." *Phyt.* i. 989. *O.S.*]

C. virens, L. Bab. 198. Fields, roadsides, etc.

NOTE.—A variety similar to that recorded above of *Lapsana communis* has occurred near Wycombe, July, 1866.

HIERACIUM. *Linn.* Hawkweed.

H. Pilosella, L. Bab. 199. Roadsides and banks.

H. murorum, L. Bab. 205. In the top wood in Wycombe Park.

H. vulgatum, Fr. Bab. 206. Woods and banks, not uncommon.

[*H. umbellatum*, L. I believe this occurs in the district, but cannot remember any definite locality.]

H. boreale, Fr. Bab. 208. Woods, banks, and roadsides. [Mr. T. P. Lucas had in his herbarium a plant from Flackwell Heath, labelled "*H. Halleri*, var. of *H. alpinum*;" I am unacquainted with the species, but think it probably misnamed: and that *H. boreale* was intended.]

ORDER XLVI.—CAMPANULACEÆ.

JASIONE. *Linn.* Sheep's Scabious.

J. montana, L. Bab. 210. This plant is, I presume, frequent in some places about Marlow, as it occurs in Mr. Mill's list with no locality affixed. I have not met with it in the district.

CAMPANULA. *Linn.* Bellflower.

C. glomerata, L. Bab. 211. Meadows by the Thames: and in dry chalky places.

NOTE.—July and August are given as the flowering-time of this plant, but in the meadows by the Thames, where it is very luxuriant, its (usually *clustered*) flowers appear in May and June. In dry chalky places as on Keep Hill, its blossoms appear later; they are also smaller, and of a paler blue, and are usually in *axillary* clusters along the stem. A dwarf form, having but one or two blossoms, also occurs. A very pretty white flowered specimen was brought me from Keep Hill, by Mr. F. Wheeler, August 5, 1866.

C. Trachelium, L. Bab. 211. Woods and hedges.

C. rotundifolia, L. Hairbell. Bab. 211. Dry places, roadsides, etc.

* *C. Rapunculus*, L. Rampions. Bab. 212. Field in Great Marlow, sparingly.

[*C. patula*, L. Is reported to grow "by the road from Loudwater to the Town Farm, near Penn, and other hedgerows." *MS.*]

NOTE.—The preceding species, in common with the remaining native members of the genus, occasionally vary with white flowers.

SPECULARIA. *Heist.* Venus' Looking Glass.

S. hybrida, A. DC. Bab. 212. Cornfields, frequent.

NOTE.—Occasionally occurs with white flowers.

[*S. Speculum*, DC. A common garden annual; was brought me by Mr. F. Wheeler, of Wycombe, from a corn field at Totteridge.]

ORDER XLVII.—ERICACEÆ.

CALLUNA. *Salisb.* Ling.

C. vulgaris, Salisb. Bab. 215. Heaths and commons.

NOTE.—Occurs on Wycombe Heath with white blossoms.

ERICA. *Linn.* Heath.

E. cinerea, L. Bab. 216. Wooburn Common.

PYROLA. *Linn.* Wintergreen.

P. minor, L. Bab. 218. Hughenden Woods, in several places; wood between Downley and West Wycombe; "in the woods at Loudwater, *Mr. Gotobed*," *Botanists' Guide*, i. 37; "a good patch by the side of Treadaway Hill on the left hand side going up from Loudwater Chapel, under the overhanging banks," *MS.*; in a wood at Parmoor, very scarcely, Mr. Melvill, in *Naturalist*, i. p. 155; "in all the woods round Marlow Common; also in woods to the right of the Wycombe road." *Phyt.* i. 990. *O.S.*: abundant in rough waste ground at Prestwood nearly opposite the church: in the wood on the left of the road at the foot of White Hill, towards Beaconsfield: also in the wood opposite the Union House, Saunderton.

Note.—This lovely little plant has been recorded both as *P. minor*, and *P. media*, thus occasioning some confusion. Sir J. E. Smith, in his *English Flora*, first started the idea that *P. media* "might be the *Pyrola* of the Stokenchurch woods," and other botanists, equally mistaken, have since considered it to be that species. In Mr. Watson's valuable *Cybele Britannica*, *P. media* is recorded for the Thames province, but its localities in Oxford and Bucks, as well as in other counties, are said to "require verification" (ii. 160) which they do not seem likely to obtain. The confounding of the two species may be the more easily understood, when I mention that the specimens of *P. minor* from this neighbourhood which have come under my notice, have presented many of the supposed characteristics of *P. media*; the style has, in many cases, appeared longer than the stamens; the stem, twisted, and so slightly four-angled as to appear triangular; the colour of the flowers, pure white, usually just tipped with pink, but never "pale pink throughout"; these points combined caused me, as they have caused others, to think it at least possible that our plant might be *P. media* after all. Thus in doubt, I submitted specimens to Professor Babington, who pronounced them to be certainly *P. minor*; adding, "The *annular* stigma of *P. media* is very different from the *five-lobed* stigma of *P. minor*." This, then, must be considered as the only distinguishing point of value between these closely allied species.

Monotropa. *Linn.* Bird's-nest.

M. Hypopitys, L. Bab. 219. "Common in this county, *Hudson*. In Marlow wood in abundance, *Mr. Gotobed*," *Botanists' Guide* i. 36. I am uncertain which of the woods about Marlow is here intended. "Woods between the Oxford and Wycombe roads, sparingly," *Phyt.* i. 990, *O.S.*; Fennell's Wood, Loudwater, *MS.*; Hughenden Woods; also reported from the wood above Avering Down Farm, opposite Bradenham; Wood above the Union, Saunderton; Quarry Wood, Berks, in abundance above the quarry, 1862-64; last year with diligent searching I could find but one specimen.

Order XLVIII.—AQUIFOLIACEÆ.

Ilex. *Linn.* Holly.

I. Aquifolium, L. Bab. 219. Woods, hedges, and commons.

Order XLIX.—OLEACEÆ.

Ligustrum. *Linn.* Privet.

L. vulgare, L. Bab. 220. Woods and hedges.

Fraxinus. *Linn.* Ash.

F. excelsior, L. Bab. 220. Woods and hedges.

Order L.—APOCYNACEÆ.

Vinca. *Linn.* Periwinkle.

V. minor, L. Bab. 220. By a path in Tinker's Wood, Downley, truly

wild ; ‡ Wycombe Park, plentiful : ditch bottom, Newland ; back lane, Wooburn !

* *V. major*, L. Bab. 220. Wycombe Park : hedge at Cookham, Berks, etc. : nowhere really wild.

Order LI.—GENTIANACEÆ.

Chlora. *Linn.* Yellow-wort.

C. perfoliata, L. Bab. 222. Open chalky places in woods : Hughenden Woods ; woods above the Union, Saunderton ; Bisham Wood, Berks, etc.

Erythræa. *Renealm.* Centaury.

E. Centaurium, Pers. Bab. 222. Woods, fields, and banks.

Gentiana. *Linn.* Gentian.

G. Amarella, L. Bab. 223 Dry chalky places, frequent ; Keep Hill, etc.

Note.—A form with very double flowers is somewhat frequent upon Keep Hill.

β *G. germanica*, Willd. With *G. Amarella*, and equally frequent.

Note—Specimens of this plant from Keep Hill, etc., agree perfectly with others, kindly forwarded to me by the Rev. H. H. Crewe, from Buckland, Bucks (the locality from which the specimen figured as *G. germanica*, in *Journal of Botany*, ii. tab. 15. was taken). It is difficult to set down on paper any characters by which *G. germanica* may be separated from *G. Amarella*, although the two forms are very different in general appearance ; *G. germanica* being much larger than *G. Amarella* in all its parts, especially in the flowers, which are also more distinctly funnel-shaped, and usually of a different shade of purple. The stalked capsule occurs in both forms. and is valueless as a distinguishing mark. Both usually occur together ; although in some places, as by the roadside from West Wycombe to Bledlow Ridge, and along the hill side between the Ridge and the Union House, *G. Amarella* only appears. It seems best to regard both as forms of one species.

Villarsia. *Vent.* Fringed Waterlily.

V. nymphœoides, Vent. "Rare." Bab. 224. A large patch in the bend of the Thames by Quarry Wood, Berks, near the footpath which goes across to Marlow.

Menyanthes. *Linn.* Bogbean.

M. trifoliata, L. Bab. 224. Abundant near the "Swilley hole," Whittington Park ; "by the Strand at Cookham, very abundantly." *Phyt.* i. 990. *O.S.*

Order LIII.—CONVOLVULACEÆ.

Convolvulus. *Linn.* Bindweed.

C. arvensis, L. Bab. 225. Fields and hedges.

C. sepium, L, Bab. 225. Hedges, frequent.

CUSCUTA. *Linn.* Dodder.

C. europæa, L. Bab, 226. "Parasitical on wild hops in a hedge at Little Marlow," *Mr. J. C. Melvill*; upon the same plant in a hedge by Cock Marsh, Berks; clover-field above Sheepridge; "hill above Snakely's Mill, near Loudwater, among the corn," *MS.*

C. Epithymum, Murr. Bab. 226. Wooburn Common, abundant.

† *C. Trifolii*, Bab. Bab. 226. In clover fields, frequent.

NOTE.—In 1865, scarcely a clover field in this neighbourhood was without this troublesome and destructive visitor. It spreads in a circle, destroying every plant of Clover with which it comes in contact, and the whole patch, frequently five feet across, appears as though burnt up.

ORDER LIV.—BORAGINACEÆ.

CYNOGLOSSUM. *Linn.* Hound's-tongue.

C. officinale, L. Bab. 229. Roadside above Wycombe Park; Deadman Danes' Bottom, near Hazlemoor; also at Downley.

BORAGO. *Linn.* Borage.

‡ *B. officinalis*, L. Bab. 229. Wycombe Park, between the Dyke and the river, *Mr. Ullyett*; field side near Bourne End; waste ground, Railway Place, Wycombe; rubbish-heap near the Ham Farm, West Wycombe.

ANCHUSA. *Linn.* Alkanet.

* *A. sempervirens*, L. "Rare." Bab. 229. Hedgebank, Great Marlow, 1864. *Miss Chandler!*

LYCOPSIS. *Linn.* Bugloss.

L. arvensis, L. Bab. 229. Cornfields near Marlow, Bourne End, and the Strand at Cookham, Berks; *Miss Chandler*; "road between Maidenhead and Marlow," *Mr. J. C. Melvill.* Has not been seen about Wycombe.

SYMPHYTUM. *Linn.* Comfrey.

S. officinale, L. Bab. 230. By streams, frequent.

β *S. patens*, Sibth. With the ordinary form.

ECHIUM. *Linn.* Viper's Bugloss.

E. vulgare, L. Bab. 230. Roadsides and clover fields, not very common: abundant on and about Cookham Bridge.

NOTE.—Specimens, with white, red, purple, and blue flowers, were noticed at White Hill, near Beaconsfield.

LITHOSPERMUM. *Linn.* Gromwell.

L. officinale, L. Bab. 231. Rare in this district. "Sparingly in Bisham Wood," Berks. *Phyt.* i. 990. *O.S.*

L. arvense, L. Bab. 231. Cornfields, etc., common.

MYOSOTIS. *Linn.* Scorpion-grass.

M. palustris, With. Forget-me-not. Bab. 231. Watery places and by streams.

M. cæspitosa, Schultz. Bab. 232. Wooburn Common; Whittington Park; &c.

M. arvensis, Hoffm. Bab. 232. Fields and roadsides.

β. umbrosa ! Gathered by Mr. T. P. Lucas, in one of the woods round Wycombe, and by him referred to *M. sylvatica*.

M. collina, Hoffm. Bab. 232. Dry banks and walls.

M. versicolor, Ehrh. Bab. 233. Banks and dry places.

ORDER LV.—SOLANACEÆ.

SOLANUM. *Linn.* Nightshade.

S. nigrum, L. Garden Nightshade. Bab. 234. Rare about Wycombe, where it only occurs as a weed in gardens; waste ground about Marlow, and by the "Jolly Anglers" Inn, opposite Marlow Church, on the other side of the river.

S. Dulcamara, L. Bitter-sweet. Bab. 234. Hedges, etc.

ATROPA. *Linn.* Deadly Nightshade.

A. Belladonna, L. "Rare." Bab. 234. Wycombe Park, near the middle lodge, very fine and abundant; "also some years ago on Keep Hill, and on the south side of the small wood above Hedge Mill, Loudwater," *MS.*; a very large plant in a plantation of young firs, Hughenden Woods; "in the woods between the Oxford and Wycombe roads, copiously." *Phyt.* i. 990. *O.S.* "Common in Bisham Wood, Berks." *Mr. J. C. Melvill.*

HYOSCYAMUS. *Linn.* Henbane.

H. niger, L. Bab. 234. Waste ground: in a pit at Littleworth, Downley, abundant; roadside near Bradenham; plentiful in a lane leading from the Union House to Bledlow Ridge; on Totteridge Common; Wycombe Park; and about Marlow and Cookham.

[*Lycium barbarum*, L. "Tea tree." Bab. 235. Hedge by the gamekeeper's cottage, in Winch Bottom.]

[*Datura Stramonium*, L. Bab. 235. Occasionally occurs as a weed in cultivated ground, Wycombe.]

Order LVI.—OROBANCHACEÆ.

Orobanche. *Linn.* Broom-rape.

O. Rapum, Thuill. Bab. 235. "Growing on Furze upon a little common to the right of the Wycombe road." *Phyt.* i. 991. *O.S.* "By the side of the field going to Town Farm, near Penn, near Mr. Rose's lodge." *MS.*

O. minor, Sutt. Bab. 237. Clover fields: near Tinker's Wood, Downley; field opposite Wycombe Park, *Mr. T. P. Lucas;* near Bisham Wood, *Miss Chandler;* "in a field above Cookham Down, abundantly." *Phyt.* i. 991. *O.S.*

Lathræa. *Linn.* Toothwort.

L. squamaria, L. Bab. 238. Under the Elm trees near the entrance to Hughenden Park, abundant.

Order LVII.—SCROPHULARIACEÆ.

Verbascum. *Linn.* Mullein.

V. Thapsus, L. Bab. 239. Roadsides and waste ground.

Note.—"Rag-paper" and "Poor Man's Flannel" are among the local names given to this species.

† *V. Lychnitis*, L. Bab. 240. On the railway embankment between Wycombe and the Marsh, several plants.

V. pulverulentum, Vill. Bab. 240. "Abundant in the lane from Deerham's Farm, above Loudwater to Penn, and in the lane from Holtspur to Wooburn Common." *MS.* I have not seen specimens.

V. nigrum, L. Bab. 240. Roadsides and borders of fields.

V. virgatum, With. I referred two plants, found in 1864, (one in a clover field by Hollow Lane, and the other by the roadside near Well End,) to this species; but they were probably hybrids between *V. Thapsus* and *V. nigrum*. A plant with the foliage of *V. Thapsus*, but with the flowers of *V. nigrum*, was noticed recently near Booker.]

Digitalis. *Linn.* Foxglove.

D. purpurea, L. Bab. 244. Woods and hedgebanks.

(To be continued.)

NOTES ON SOME FORMS OF *CRATÆGUS*.

C. P. Hobkirk.

(Concluded from page 65.)

From the want of authentic specimens of the various authors, and having only their written descriptions to depend upon, I find it almost impossible to settle the synonymy of the forms described, no one of them agreeing altogether with any other. Linneus' *oxyacantha* clearly includes all the forms, and must either be thrown aside altogether, or otherwise affixed to one of the forms and be more clearly defined. Then arises the question which is the true *oxyacanthoides* of Thuillier? This I have endeavoured in vain to ascertain. His principal character seems to be that the leaves are glabrous and not serrate—but not one of the specimens I have, thus labelled, have these characters; most of them have more or less serrate leaves, and are also more or less hairy on both sides; one form from near Lyon labelled by M. A. Jordan, has the leaves plain, but hairy on the midrib and principal veins on both surfaces, whilst Mr. Boswell Syme's specimens from Hampstead Heath have finely serrate leaves which are also hairy on both sides. Boreau describes Thuillier's *oxyacanthoides* as having "inciso-dentate lobes, glabrous," (ante p. 12) with which a specimen from Dered-el-Keber near Blidab, Algeria, agrees well, as also in its other characters, and on this account I should feel inclined to adopt his diagnosis as the typical *oxyacanthoides* and include some of the other forms as varieties.

Jacquin's description of *monogyna* is more precise and particular than Thuillier's of *oxyacanthoides*, and on this account I would adopt his diagnosis, with some slight modifications, as that of the typical *monogyna*. Two forms which have hitherto been included under this name may safely be separated as distinct species, and some others may be included as varieties.

After a careful examination and comparison of the forms in my possession, I would then propose the following division into species and varieties of the forms hitherto included under the above two names.

i. C. Oxyacanthoides. Thuil.

C. spinosa, foliis obovatis, trilobatis, serratis, utrinque glabris, lobis nervisque convergentibus, pedunculis glabris, floribus corymbosis 2-3-gynis calycibus laciniisque glabris, his plano-expansus, acutiusculis reflexis, fructibus globosis, nucleis 2-3 includentibus.

Algeria, J. Lefebre, 1861.

Var β *majus*, foliis amplibus, serratis, utrinque pubescentibus.

C. Oxyacantha. Fing.

Hampstead Heath, J. Boswell Syme, 1864.

The leaves of the typical form of this species are roundish or obovate, more or less serrate, and without hairs, the peduncles, calyx and germen being also glabrous. A specimen gathered near Lyon by M. Jordan agrees with the type very well except that the leaves are larger and not at all serrate. An English specimen sent from Kew by Mr. Baker only differs in the leaves being occasionally very slightly hairy on the midrib beneath, whilst another approaches more closely to variety *majus*.

The variety *majus* has the leaves two or three times larger than in the type, more elongated and somewhat hairy on both sides.

ii. C. MONOGYNA. *Jacq.*, *Fingerhuth.*

C. spinosa, foliis serratis, 3-5 lobatis basi cum petiolis subtusque in nervis subciliatis nervis divaricentibus, floribus corymbosis monogynis stylo recto, calycibus glabris vel aliquando subciliatis, laciniis ovatis reflexis, apice obtusis, pedunculis glabris, fructibus globosis vel oblongo-ovatis, nucleo uno incluso.

Mirfield, near Huddersfield, C. P. Hobkirk, 1866.

Near Atherstone, Rev. W. T. P. Meade King, 1866.

Isle of Man, C. P. Hobkirk, August 1866.

Var. β *urceolata.* Fructibus urceolatis, longioribus bis quam latis.

Near Thirsk, J. G. Baker, August, 1865.

This species is I believe pretty generally distributed throughout England. It varies somewhat in the size and serration of the leaves, and in the depth of the lobes, but otherwise so far as my specimens are to be relied on may easily be recognised by its constantly glabrous peduncles and calyx, the latter having occasionally a few scattered hairs upon it. This is the plant distributed by Professor H. Van Heurck on his "Herbier des plantes rares ou critiques de la Belgique, Fasc. III, No. 140," gathered by M. A. Wesmael, at Mons, in 1864.

β *urceolata*, as its name indicates has the fruit urceolate, and at least twice as long as broad, with leaves deeply divided, and not so generally serrated as in the type.

iii. C. KYRTOSTYLA. Fing. *C. monogyna*, Auct. *C. calycina*, Petermann (?)

C. spinosa, foliis utrinque glabris vel subtus nervis ciliatis, plerumque serratis, 3-5 lobatis, nervis divarigentibus, floribus corymbosis monogynis, stylo deflexo (?) calycibus pedunculisque hirsutis et etiam germinis, laciniis oblongis acuminatis, apice obtusis, patentibus vel aliquando reflexis, fructibus sub-globosis nucleo uno.

Atherstone Warwickshire, Rev. W. T. P. Meade King, June 1866 : Huddersfield, C. P. Hobkirk, June 1866 : Sowerby, near Thirsk, J. G. Baker, F.L.S., August 1865.

This species which seems to be almost equally common with the last is distinguished from it by its hairy peduncle, calyx and germen, by its larger and almost glabrous leaves, and by its calyx generally patent on the ripening fruit. I have preserved Dr. Fingerhuth's name, although I am not clear that the style is in all cases as he states *reflexed*, still in many of the specimens which I would refer to it, it is so. It seems to be also the form generally described by authors as the *monogyna* of Jacquin, "with peduncles and calyx hairy," but I think this can scarcely be admitted in face of his "pedunculi nullis villis pubescent." I prefer therefore to refer the form with naked peduncles to his name, and to separate the other with hairy peduncles under Dr. Fingerhuth's name.

iv. C. LACINIATA. Ster.

"Affinis *C. monogynæ* differt vero, foliis fere pinnatis, pinna extima trilola confluente cum lateralibus duæ infimæ a reliquis magis distantes in petiolum quidquam decurrentes bifidæ, omnes vero oblongo-lanceolatæ, inæqualiter inciso-serratæ. Florentem nondum vidi." *

Besser Enumeratio, p. 159, dato 1822.

C. monogyna β *laciniata*, Ledebour Fl. Rus. ii. p. 89.

This seems so far as the leaves are concerned to be quite distinct from any of the other forms, and may readily be detected even in driving quickly along the road, from the other forms growing side by side with it in the hedges. The leaves are in many instances quite pinnate, the lower pinnæ being almost always divided quite down to the midrib, and the next pair very frequently so ; they are quite glabrous on both sides, but occasionally somewhat ciliate on the edges near the base. The upper surface is a dark green colour, whilst the under, is much lighter frequently whitish green. The flowers I have not seen. The difference in the foliage cannot be attributed to situation, soil, or exposure, as I have frequently seen it growing here between two shrubs of *monogyna* in the same hedge, and recently whilst in the Isle of Man I remarked the same.

There is a species described by Bunge as *C. pinnatifida*, (Enum. plant. Chin. No. 157 in Mem. de l' acad. des Sciences de St. Petersburg 2. p. 100.) as being a high growing shrub with thorns, and spread over Northern China and as far the Amoor, and the Manchurian coast and probably also near St. Petersburg. The leaves are described as broad, oval, and pinnate, with from 2-4 pinnæ on each side, of which the lowest are somewhat rectan-

* Since writing the above I have received from Mr. Baker, a sprig of fruit of *C. laciniata*, taken from a hedge at Kew, and can therefore add the following particulars :— floribus corymbosis monogynis, fructibus globoso-ovatis, pedunculis glabris, nucleo uno.

gular, and spreading, all long pointed, toothed, naked above, but hairy beneath on the nerves. Peduncles and base of calyx slightly hairy.

Ext. Regel Gartenflora 1862, p. 204, tab. 366.

As I have no authentic specimens, and have not seen the plate I cannot determine the synonymy of this form ; it probably is not found in England.

In conclusion I may state that most of the forms I have examined may be referred to one or other of the above proposed species, with little or no difficulty.

In order to render their discrimination more easy I add a dichotomous table showing their principal characters :—

1.—Nerves divergent, style one..... 2.
„ convergent, styles 2-3 ..... oxyacanthoides.
2.—Peduncle and calyx hairy.....kyrtostyla.
„ smooth ..... 3.
3.—Leaves pinnatifid only.....monogyna.
„ deeply pinnatifid, or quite pinnate towards the base...laciniata.

Huddersfield, 1st September, 1866.

THE PENDULOUS NEST OF A SOCIAL TREE WASP.

By E. Foxton-Firby, F.A.S.L., F.R.A.S., &c.

During the summer of 1864, while out on the borders of the western moorlands, which trend away northward from Pateley Bridge, I was fortunate in discovering a beautiful specimen of a pendent vespiary, suspended from the branch of a hazel-bush. This elegant nest is about the size of an egg, but is more of a globular than an ovoid form. It consists of several concentric bells, with considerable intervals between each, the interior only being entire, and furnished with a small circular orifice, the rest reaching only about two-thirds from the base of the nest. In the nucleus of the complete or entire bell, is situated the congeries of cells, built round a small central pillar attached to the base ; the cells are few in number, and their orifices are all vertical. The nest I have reason to suspect is that of *Vespa holsatica*, Fabr., rather uncommon in England, and said to be much larger than the *nidus* of *Vespa Britannica*, Leach. In the *Magazine of Natural History* 1839, p. 458, Mr. Shuckard gives an account of the nest of a wasp,

which he regards as *V. Britannica*,—remarkable for the material of which it was constructed, and for the locality in which it was found. This nest, which was exhibited at a meeting of the Entomological Society, was found near Croydon, built in a sparrow's nest, and attached to the lining feathers. "The smallness of the nest," says Mr. Shuckard, "and also of the tier of cells, as well as the peculiar material of which it appeared composed, led to a discussion, the tendency of which seemed to support the opinion that it was most probably the nest of a *Polistes*, a social-wasp not yet found in this country, but if not of *Polistes*, certainly not yet determined or known." The nest was ovate, about an inch and a half long, with a tier of cells internally, originating from a common pedicle. It appeared to be constructed "of the agglutinated particles of a soft white wood, probably willow, very imperfectly triturated;" whence the externally rough granulated appearance. "The nature of the material," continues Mr. Shuckard, "and its unfinished execution, as well as the situation in which it was found, appear to me to be its own peculiarities, and I must necessarily consider it merely an accidental variation in material and locality from the usual nests of the *Vespa Britannica* of Leach." Mr. Shuckard concludes his paper by stating that he strongly suspects the identity of *Vespa holsatica* and *Vespa Britannica*.

Headingley, Leeds.

NOTES ON NORFOLK ORNITHOLOGY.

By T. E. Gunn.

From January 1st, to April 30th, 1866.

Buzzard. An immature male was killed in the vicinity of North Walsham on the 2nd of January. Its stomach on dissection proved to be fully extended with a compact mass of rabbit fur, in the interior of which were the two halves of an ear-wig.

Sparrow Hawk. During March and April three nice adult males with the red breasts were killed by a friend of mine in the neighbourhood of Wymondham: they are now in my collection.

Peregrine Falcon. January 16th, an immature female shot at Cautlay.

Great Grey Shrike. One specimen obtained during the latter part of March.

Ring Ouzel. April 28th, a male in my possession shot at Kimberley.

Hawfinch. February 12th, an adult male killed at Saxlingham. April 9th, a female shot at Poringland.

Waxwing. In the early part of March a single individual was observed for several days in Mr. Geldart's garden at Thorpe, near Norwich.

Great Spotted Woodpecker. An adult male killed at Kirbycane, near Bungay, on the 18th of April. Previous to its capture it had evidently fallen in with a brood of larvæ of the Goat Moth *Cossus ligniperda*, (of the first years growth.) On examining its stomach, I found it to contain as many as nine larvæ. The larva appears to have been killed previously to being swallowed, as each individual was nearly bitten through between the head and second and third segments.

Hoopoe. A female killed at Hargham near Attleborough, on the 18th of April. It measured $11\frac{1}{4}$ inches from tip of beak to tip of tail, $17\frac{1}{2}$ inches from tip to tip of extended wings, six inches in wing from carpal joint, $4\frac{1}{4}$ inches tail, $2\frac{1}{6}$ inches in bill. Eyes, blackish brown, nearly black; bill, black, horn colour at the base; contents of stomach larvæ and small beetles.

Quail. A female shot near the beach at Salthouse, on the 9th of January.

Woodcock. April 6th a male in my possession shot at Ketteringham.

Bittern. Two examples of *Ardea stellaris*, were obtained, one on the 9th of February, on Hickling broad, and the other in our Fish market, on the 3rd of April; both were males and in excellent condition.

Long Tailed Duck. A female killed at Salthouse, about the 2nd of January.

Black Tern. April 2nd, an adult male on Surlingham broad.

Great Northern Diver. An immature example was secured on Surlingham broad, on January 9th.

Arctic Tern. An adult male specimen was killed on Scoulton Mere, by Mr. J. Browne, on the 14th of April.

Variety.

Rook. A curious variety of this species was shot on the 20th of April, on Ranworth Broad. Its entire plumage was of ash grey, with patches of chocolate and slate colour intermixed. Its bill, legs, and feet correspond with the hue of its plumage.

3, *West Pottergate, Norwich.*

NOTES ON THE ORNITHOLGY OF NORFOLK.

By T. E. Gunn.

Kite. I have to record the occurrence of a magnificent adult male specimen of the Kite *Falco milvus*,, on our coast on the 30th instant. This species being a very rare visitor to this county, as indeed it is to most parts of the British Isles, a few particulars respecting the above individual may be interesting to some of the readers of the *Naturalist.* It was killed on the above date, by a gentleman named Whaite, at Martham, which is about two miles distant from the sea coast, and eight from Great Yarmouth. It measured twenty-seven inches in length from beak to tail both inclusive. The head is ash grey with narrow brown streaks down the centre of each feather, which are long and pointed; those of its crown are also tinged at the margins, with pale yellowish brown. The surface of its back is dark brown, the feathers margined with rufous brown. Its wings are long and pointed, and measure when fully extended five feet one inch across to the extreme tips of each: the primary quill feathers are narrow, the first five black, the fourth the longest extending three-eighths of an inch beyond the others; the fifth to the tenth are brown with rufous brown on the outer webs, with the inner webs and the tips are dull white, crossed by bars of darker brown; the remainder of the feathers are brownish black. Upper wing coverts rufous brown, streaked with dark brown. Its breast and abdomen are of a reddish brown, each feather streaked with dark brown. Its thighs are reddish brown, slightly paler than its breast, the shafts of the feathers only being dark brown. It has a splendid tail which is fourteen and a half inches in length, the outer feathers of each side project three and a half inches beyond the tips of the centre ones; the upper surface is reddish brown, tips of feathers dull white; under surface pale reddish brown, the two outer feathers of each side are of a pale brown on the outer webs and towards the tips, barred with darker brown on the inner webs; shaft of feathers, black, upper and under tail coverts reddish brown. Iris and cere, yellow. Bill, brownish black at the tip, assuming a pale horn at the base; legs and toes, yellow; claws, black. The bird was in good condition and weighed two pounds with the exception of two ounces. The weight of examples of this species as given in Morris' "*British Birds,*" Vol. I. page 76, is from two pounds six ounces to two pounds and three quarters. The stomach of the above specimen which I dissected contained a few pieces of reeds and some feathers, the latter apparently those of the winglet of the common Scoter, *Anas nigra.*

Merlin. An immature female was shot on the 22nd instant, at Hethersett, near Norwich.

Great Northern Diver. A fine immature male of this species was obtained on our coast during the early part of this month. Having an opportunity afforded me of dissecting it, I found its stomach fully extended with a mixture of fish scale and bones, and two specimens of the roach almost entire the largest measured six and a half inches. Its grindstones consisted of seven or eight large sized white pebbles.

3, *West Pottergate, Norwich, December* 1865.

N.B. This communication was unfortunately mislaid, or otherwise it would have been inserted in a former number.

NATURALISTS' CALENDAR FOR 1866, KEPT AT PLYMOUTH.

By T. R. Archer Briggs.

July 2nd—*Teucrium Scorodonia*, flowers.

,, 3rd—*Calamintha officinalis*, Angl., *Pimpinella magna*, L., and *Torilis Anthriscus*, Gært. flower.

,, 4th—*Sambucus Ebulus*, L. flowers.

,, 5th—*Circœa lutetiana*, L., in flower.

,, 7th—*Epilobium hirsutum*, L., *Picris hieracioides*, L., and *Cichorium Intybus*, L. flower.

,, 8th—Imago of the Frog-hopper appears.

,, 10th—*Calamintha Clinopodium*, Spen., flowers. A nest of the Pied Wagtail, *Motacilla Yarrellii*, found at this date with five eggs.

,, 14th—*Hypericum tetrapterum*, in flower. *Hypericum Elodes*, L., and *Wahlenbergia hederacea*, Reich, flower.

,, 16th—*Convolvulus sepium*, L., flowers.

,, 17th—*Clematis vitalba*, L., and *Eupatorium Cannabinum*, flower.

Aug. 8th—Many specimens of the Azure Blue Butterfly, *Polyommatus Argiolus*, seen.* *Allium oleraceum*, flowers, *Carlina vulgaris*, L., in flower.

,, 11th—Wall Butterfly, *Lasiommata megœra*, and Peacock Butterfly, *Vanessa Io*, seen.

* These specimens belonged of course to a second brood.

Aug. 13th—*Saponaria officinalis*, (double variety,) and *Scabiosa succisa*, L., flower.

„ 14th—*Lycopus europœus*, L. in flower.

„ 21st—Brimstone Butterfly, *Goniapteryx Rhamni*, appears, (the autumnal brood) *Sedum Telephium*, L. flowers, Berries of *Pyrus aucuparia*, ripe.

„ 28th—Berries of *Sambucus nigra*, L., ripening at this date.

Reports of Societies.

Queckett Microscopical Club.

At the last meeting of this society, held on Friday, August 24th, Ernest Hart, Esq., president, in the chair, a paper was read by Dr. Tilbury Fox, "On the Vegetable Parasites of living Beings," of no little interest as bearing upon the "blue mist" question of Mr. Glashier. It has been suggested that the blue mist may be due to the presence in the atmosphere of the spores of low forms of vegetable life. Dr. Fox's paper embraced an account of the life and influence of minute fungi in general; showed that the presence of cell structures was to be expected in all situations to which the air has access, their discovery hitherto having been delayed by the absence of observation and the want of a sufficiently high powered microscope. Fungi are especially prevalent at such seasons as the present, in which rusts and mildews have abounded. These germs are very light and can be easily wafted by the air from place to place; they seem not only to be found in spots accessible to the external air, but also deep in the tissues of living things, being carried upwards bodily by the growing tissues in the same way that particles of charcoal get into the interior of intestinal vessels, running to the liver in ordinary "ringworm"; the fungi which are the cause of the disease according to Dr. Fox, get into the hair follicle, reach the root and are carried up by the growing shaft into the body of the hair. In like way rusts effect an entrance within the leaves of growing plants, but at a very early date, through the first pair of young seedleaves. Fungi never appear to flourish on healthy surfaces. The author entered into the question of their influence in the production of disease. After speaking of "ringworm" in particular he concluded, and this is the interesting point in reference to the "blue mist," that the prevalence or undue amount of microscopic fungi is always coincident with that of epidemic disease, that the two must not be regarded as cause and effect but were both helped out of the same influence. Whatever debilitates man renders him more liable to epidemic disease, and whatever induces an unhealthy state of vegetation, favours the rapid development upon it of mildews, rusts, and moulds, but these do not seem to be capable of producing anything like *epidemic* poison. The existence then of the "blue mist" supposing it to be due to the presence of vegetable germs in abundance, can only be looked upon as a coincidence as regards Cholera. Mr. M. C. Cooke related many instances in proof of Dr. Tilbury Fox's opinion, that the germs of parasites enter the tissues of living plants at a much earlier age than is generally supposed and that fungi will not flourish upon a healthy surface. Several other speakers followed. A second paper was read by Mr. Burgess, on "A New Plan for putting up Microscopic Objects," by which the whole area of large specimens might be exhibited at the same time.

Leeds Naturalists' Society.

A meeting of this Society took place on September 10th, Mr. Blackburn in the chair. After the minutes of the last meeting had been read and confirmed the following specimens were exhibited :—

Mr. Blackburn exhibited the following plants collected at Boston Spa this day.
Actæa spicata, Baneberry.
Ægopodium Podagraria, Goutweed.
Eupatorium cannabinum, Hemp agrimony.
Solidago Virgaurea, Golden rod.
Aspidium lobatum, Close leaved Prickly Shield Fern, and several others.

In Entomology, Mr. Schofield exhibited Pupæ and Eggs of Common House Fly.
Pupæ and flies from cheese mites.

Mr. Liversedge showed several butterflies which had been sent to him by Mr. Roberts (lately one of the members) from New Jersey, U.S., and also read an interesting letter from Mr. Roberts describing his voyage to America, and his experiences —entomological and general,—since his arrival there.

September 17th. Mr. W. H. Taylor in the chair. The minutes of last meeting having been read and confirmed, Mr. Scholefield exhibited Malva sylvestris, and several other plants collected at Boston Spa.

Mr. Blackburn described a conchological and botanical excursion with a friend to Boston Spa on the 10th of the present month, as follows :—

The first specimen of Mollusca, collected was Pupa umbilicata, at the bottom of an old wall on the road side beyond Roundhay.

After reaching Boston and turning down a lane that leads from the other side of Boston church to Jackdaw Crag, and by the side of the Wharfe, the following specimens were obtained :—

Clausilia laminata, from the bole of an ash tree.
C. rugosa, Jeff. var. Everetti.
Cyclostoma elegans, creeping on the top of dead leaves.
Zonites cellarius, under moss at the foot of trees.
Z. alliarius, in similar places.
Z. nitidulus, do. do.
Helix fusca, a few.
H. aspersa, do.
H. nemoralis, do.
H. nemoralis, var. hortensis.
H. arbustorum, not many.
H. rufescens, a few.
H. cantiana, four specimens.
H. hispida, a few.

The plants collected were those mentioned in the account of last week's proceedings, and also Sambucus Ebulus, with fruit.

After going back to Boston and partaking of refreshment, they proceeded on the road towards Collingham and at various places collected Helix aspersa again, also

Helix virgata, with pink lips, many small but fine specimens.
,, ,, monstrosities three sps.
,, ,, var. subaperta.
H. caperata, about a dozen.
H. ericetorum, a few.
Bulimus obscurus, not many.
Pupa umbilicata, about two dozen.
P. marginata, ,, ,,

The chairman then read a letter from Mr. Nelson of Birmingham, (lately one of the members) describing an excursion with some friends to Cheltenham, where, besides many others they collected the following shells :—

Pupa secale, Clausilia Rolphii, Bulimus montanus, Helix rupestris, H. pomatia, Cochlicopa lubrica, Carychium minimum, Balia perversa, Limax arborum, &c., &c.

Observations.

Rosa Cuspidata. *Bieb.*, in Britain.—The Rev. W. T. P. Meade King, of Atherstone, has kindly forwarded specimens of the above rose from two localities

in which he has discovered it during the present summer, viz :—from near Atherstone in Warwickshire, and near West Haddon, Northamptonshire. So far as we know this appears to be the first time this species has been really identified as British, although M. Déséglise includes it in his "Synopsis specierum" published in the *Naturalist*, Vol. i. p. 313, as British. In Lindley's Monograph of the Roses, published in 1820 it is stated to be only known from Bieberstein's description. In his "Review of the British Roses" *Naturalist* Vol. i. p. 373, Mr. Baker includes it under *R. tomentosa*, Smith. He writes, "Of the French species, I do not see how *R. cuspidata*, *subglobosa*, *tomentosa*, and *Andrzeiouskii* are to be separated. Our common North of England plant agrees with M. Déséglise's description of *cuspidata*, and to this he refers many of the specimens out of a range of forms which I sent." These remarks of Mr. Baker will probably account for M. Déséglise including it as a British species. For the benefit of those who may not be acquainted with this plant, and in order to facilitate its determination should it be met with again, we transcribe a translation of its diagnosis from Boreau's Flore du Centre, Vol. ii. p. 231. :—

"*R. cuspidata*, M. Bieb. *R. villosa*, var. *montana*, Durand ! Duq. Cat. Pl. Lis. A branching shrub with scattered prickles, robust curved or hooked, petioles villose, glandulose and covered with small spines ; upper stipules dilated with pointed auricles ; leaflets 5 to 7, rather large, more or less pubescent above, softly villose and whitish beneath, and sprinkled with small glands, oval or elliptic lanceolate pointed, doubly dentate, with the teeth glandulose pointed ; peduncles hispid solitary or in tufts ; Calyx-tube ovoid hispid ; sepals tomentose glandulose with elongated appendages ; styles bristly ; fruit rounded bristly, crowned at maturity with the spreading calyx. Flowers rose-coloured afterwards white. June and July, (in France) rare." —C. P. Hobkirk.

Sanguisorba canadensis in Perthshire.—Mr. John Sim has sent us a specimen of *Sanguisorba canadensis*, gathered by him about a mile to the east of Perth and about sixty yards from the North bank of the Tay, on the 4th September, 1866. The specimen sent is in full flower and was growing in some quantity in hollow moist ground, in two different localities about one hundred yards apart from one another. This is another interesting addition to our *aliens*.—C. P. Hobkirk.

Malformed Kitten.—A remarkable malformation in the young of the domestic cat came under my notice yesterday. It was cast at Framlingham, near Norwich, and lived three days. Its head was double, the two crania being joined at the base, forming one long one, somewhat resembling a funnel. Its ears and lips are large, an extra lip appearing between the upper and lower ones. It has two bodies which join at the chests. Two of the fore legs on one side are perfect, on the other, they form a double one with two perfect feet attached. The hinder legs and tails are quite perfect. I have seen malformed examples of the domestic cat in several instances but the above is I think the most remarkable. —T. E. Gunn, August 23rd, 1866.

Note on the distribution of Helix lapicida, Linné.—Most Conchologists take it for granted that this species is not found further North than Went Vale, near Pontefract. It occurs, however, in some abundance on the limestone rocks at Malham, in Craven, in company with *Helix rupestris*, Studer., and I am inclined to think that it will be found to have a still more northern range ; perhaps some of the readers of the *Naturalist* may throw further light on this subject.—George H. Parke, Halifax.

Original Articles.

NOTES ON NORFOLK ORNITHOLOGY.

By T. E. Gunn.

(*From April 30th to July 31st*, 1866.)

Hobby. An immature specimen, a male, was shot at Langley, on the 26th of June. Its stomach on dissection I found to contain the remains of a gray linnet, two examples of the Ghost Swift Moth, a large Dragon Fly, and some small beetles; the wings of the dragon fly were taken off close to the body, but the moths and beetles were swallowed whole.

Long-Eared and Barn Owls. Several examples of these two species have been killed during the last few weeks.

Magpie. July 28th, an immature female, at Stratton Strawless.

Crossbill. A flock of this species passed over a fir plantation at Northrepps near Cromer, on the 15th of July.

Spoonbill. Two examples have occurred, one an adult male was shot on the 2nd of May, near Burgh St. Peter, and passed into the possession of the Rev. C. J. Lucas, of that place. The other was an immature bird, and was killed about the same date at Hickling. The former specimen measured as follows:—

From beak to tail, (both included)		35¾ inches
Across its fully extended wings	4 feet	9 „
Wing from carpal joint.....		16⅜ „
Bill, tip to gap { Lower mandible.....		8¼ „
Bill, tip to gap { Upper „		8½ „
Tail.....		5 „

Iris, carmine red; its crest was not fully grown; the longest feathers measured four inches. In dissecting it I discovered three examples of the Smooth-tailed Stickleback in its throat, these were in perfect preservation. (See *Naturalist*, Vol. iii, page 67, and *Zoologist*, S.S. page 348.) I also found some others in its stomach in a decomposed state mixed with some muddy substance, which composed the entire contents of the stomach.

Baillon's Crake. I have the pleasure to record the occurrence o a nest of eggs of this rare species in Norfolk this season, information of

which I received from W. M. Crowfoot, Esq., of Beccles, (in whose possession they now are) ; he says, " the nest of Baillon's Crake, containing four eggs, was taken by a poor man at Potter Heigham, on the 9th of June, the nest was rather small and loosely constructed, and placed in a bed of reeds growing in water. The old birds were seen but not identified."

Garganey. May 7, an adult male, Surlingham broad.

Black Tern. May 7, an adult male, Surlingham broad.

3, *West Pottergate, Norwich.*

NOTES RESPECTING THE BOTANY OF PLYM VALLEY AND ITS NEIGHBOURHOOD.

By T. R. Archer Briggs.

From having resided many years at Plymouth, I have had frequent opportunities of studying the varied botany of the valley of the Plym, and purpose in this little paper saying something about the most remarkable plants that are to be met with in the vale between Long Bridge, about three miles from Plymouth, and Shaugh Bridge about four or five miles higher up the river. On the right bank a little above the former place stands Leigham House, and the lawn here is one of the few stations in the neighbourhood of Plymouth for the Cowslips, *Primula veris*, L., a plant very uncommon in the S.W. of Devon, though the nearly allied Primrose, *P. vulgaris*, adorns most of our woods and hedge-banks in early spring ; where its lovely flowers in some of the wooded rocks of this valley are mingled with the delicate ones of the Wood Anemone, *Anemone nemorosa*, L. One low wooded spot here produces the Daffodil, *Narcissus Pseudo-narcissus*, L., with us, quite a common species in orchards, but more rare in woods and copses, though found frequently enough in them to make its claim to be regarded as truly indigenous, indisputable. Two or three months later in the season two strikingly handsome plants (about Plymouth allied in their distribution,) the Columbine *Aquilegia vulgaris*, L., and Bastard Balm, *Mellitis Melissophyllum*, L., adorn bushy spots on the hill sides, and court sun light rather more than does the Anemone. On a sand-bank in the bed of the river between Long and Plym Bridges, I last year detected a patch of the rapidly spreading American Monkey Flower, *Mimulus luteus*, Willd., doubtless derived originally from

some garden. Another sand-bank near, yields *Mentha piperita*, β of Smith; *vulgaris*, Sole, t. 8. About a mile beyond Plym Bridge are extensive slate quarries on both sides of the river, named respectively Rumple and Cann, and on the rubble thrown out from them the botanist will meet with some of the botanical treasures of the valley. In some places here the rare Mossy Tillæa, *Tillæa muscosa*, L., abounds, giving in May and June a red tinge to the most arid spots, and should the summer be wet, continuing to flourish for some time but disappearing before autumn when hundreds of young seedling plants may be found springing up, the most luxuriant of which produce a few flowers the same year, but do not attain their full size and development until the succeeding spring. Spear-leaved Willow-herb, *Epilobium lanceolatum*, S. & M., delights in this slaty soil, and grows abundantly in it, intermixed with three other species of the same genus, *montanum*, *obscurum*, and *parviflorum*. Here I have once or twice found dubious plants—hybrids apparently between some two or three of these species; one of which I have now in my herbarium, seemingly the produce of *E. montanum* and *lanceolatum*. Near a cottage close to Cann Quarry, Dwarf Elder, *Sambucus Ebulus*, L., occurs, but perhaps only as a naturalized species, as the proximity of its habitat to the cottage is suspicious, and the plant, so far as I am aware, grows nowhere else near Plymouth. Other not very common plants to be found above the quarries are *Barbarea præcox*, *Teesdalia nudicaulis*, *Sagina ciliata*, *Sagina subulata* and *Trigonella ornithopodioides*. Rabbits seem to consider the last choice food, for they had so nibbled off its tender leaves last spring that I was not able to secure a perfect specimen here. Common Wood, notwithstanding its name a now only partially wooded tract, lying between Rumple Quarry and Bickleigh Vale, produces many botanical rarities, among them Waved-leaved S. John's Wort *Hypericum undulatum*, Schousb., which abounds in a marshy valley here, and occurs also in damp spots, associated with the Marsh Violet, *Viola palustris*, L., Bog, S. John's Wort, *Hypericum Elodes*, L. Marsh Willow-herb, *Epilobium palustre*, White-rot, *Hydrocotyle vulgaris*, L., Ivy-leaved Campanula, *Wahlenbergia hederacea*, Reich., Moneywort, *Sibthorpia europæa*, L., Bog Pimpernel *Anagallis tenella*, L., Lesser Skull-cap, *Scutellaria minor*, L., Bog Asphodel, *Narthecium ossifragum*, Huds., and Flowering Fern, *Osmunda regalis*, L. A rocky hill-side here produces the Sweet Mountain Fern, *Lastrea Oreopteris*, Presl., and the Recurved Prickly-toothed Fern, *Lastrea fœnisecii*, Wats., whilst a low wall by the side of the tram-road, formed for bringing the granite in from Dartmoor, furnishes a habitat for the Scaly Spleenwort,

Cetcrach officinarum, Willd., as a mass of rocks, quite in the valley, below Common Wood, does for the Lanceolate Spleenwort, *Asplenium lanceolatum*, Huds., which occurs also near Shaugh Bridge. Sweet Briar, *Rosa rubiginosa*, a species very uncommon in a wild state near Plymouth, seems indigenous between Coldwell and Common Wood, whilst bushy spots on the hill-sides produce *Rosa tomentosa*, Woods., *Rosa collina*, Jacq., and numerous *Rubi*. Common Wood is the only known station in the county for the curious and interesting Stone Bramble, *Rubus saxatilis*, L. In some of the natural woods of the valley the Sessile-fruited Oak grows intermixed with the typical form: in many places fine bushes of the Berry-bearing Alder, *Rhamnus Frangula*, L., and Gueldres Rosa, *Viburnum Opulus*, L., occur; whilst the Mountain Ash, *Pyrus aucuparia*, Gaert, occasionally attains the dimensions of a small tree, and here and there in Fancy and Common Woods may be seen its rare relative the Wild Service, *Pyrus torminalis*, Sm. In poor stony arable land at the latter place *Barbarea intermedia*, has appeared for two consecutive seasons, and threatens to establish itself as a weed.

It is not for the botanist alone that the lovely valley of the Plym has attractions, for every admirer of the picturesque must be charmed with its beautiful scenery, whilst the ornithologist may here study the habits of many species of birds, among others those of the Dipper, *Cinclus aquaticus*, and Grey Wagtail, *Motacilla boarula*, which breed by this river, and are both permanent residents in Devon. Cann Quarry is a chosen resort of the latter species, which sometimes selects a hole in one or other of the bridges that span the river, as a site for its nest. As, however these notes were to be botanical, not ornithological I will say no more about the charming Grey Wagtail, and conclude my little paper.

10, *Torrington Place, Plymouth*, 17*th September*, 1866.

VISIT TO THE JARDIN OF THE MONTANVERT, MONT BLANC.

By Dr. F. Buchanan White.

Prof. C. Martins in a former number of the *Naturalist* has given a very interesting account of the "Jardin" of Mont Blanc, and of the plants growing there; so, stirred up by his and other descriptions of that curious

place, I, accompanied by two ladies (one of them my wife,) walked up after dinner on the evening of September 4th, to the Montanvert, intending if the following day should be fine to make an excursion to the " garden."

The Montanvert is a hill bounding the great glacier of the Mer de Glace and on it at a height of 6,303 feet is built a Chalet, on the spot where De Saussure's hut stood. Here we spent the night, and the next morning, (September 5th,) started soon after 6. a.m. for the Jardin. The path for a short way runs parallel with the glacier and goes over some narrow ledges of rock, decorated with Alpen-rosen, (*Rhododendron ferrugineum*) and *Azalea procumbens.* We soon however descend upon the ice and pick out our way among the numerous blue crevasses and over various narrow bridges of ice. In this way some miles were soon passed over, till we arrived at a spot where the glacier divides into several branches. Turning to the left we come to the foot of a high moraine ; (for the benefit of those not acquainted with glacier terms, I may mention that a moraine is a mass of rocks and earth that falling from the hills above, has accumulated on the glacier, and is carried onwards by it as it descends. If the moraine is in the centre of the glacier it is said to be " medial"—if at the sides " lateral." These masses are often of considerable size.) This moraine was of the kind termed lateral, and on it I observed several species of Alpine plants,—among them *Senecio incanus, Linaria alpina, Achillea nana,* etc. On the left of the moraine the glacier Talefre descends a very broken and pinnacled surface ; and part of its rocky bed being uncovered, showed beautiful examples of ice-polished rock.

After about an hour's fatiguing scramble up the moraine we approached the edge of the glacier where its smooth surface permitted us to cross. As the sun had now begun to make its rays felt, before venturing on the dazzling snow-covered ice, we thought it advisable for the welfare of the skin of our faces to put on our masks veils and snow spectacles. Thus equipped, we trudged for about half an hour through the snow and reached the " Jardin."

" The " Garden" is a somewhat triangular slope, of about seven acres in extent, covered with rocks and grass. The lowest part of it is 9,030 feet above the sea. It is entirely surrounded by ice and snow, and enclosed in a vast amphitheatre of snow-covered rocky hills, some pointed like needles, (*Aiguilles*) others in long sharp ridges, and culminating in the round summit of Mont Blanc, 15,784 feet above the sea. A terrible silence reigned over all the wide expanse of snow and ice, and barren rock, and was made all the

more striking, by the roar of an avalanche pouring over the rocky sides of the amphitheatre, or by the hum of a bee exiled to this island in the ice.

Though late in the season the Garden still had many insect inhabitants. *Vanessa urticæ*, and an *Erebia* or two, represented the butterflies; several moths completed the list of Lepidoptera. Several other orders of insects, and a spider or two were also present. In addition I found the larvæ of a species of *Argynnis, (?)* and one or two Dipterous larvæ—the birds were limited to one species—a flock of Ptarmigan.

I collected upwards of fifty Phanerogamia still in flower, one fern, *Allosorus crispus*, many mosses and Hepaticæ, and one *Agaricus (?)* After waiting an hour or two we began to retrace our steps and with no mishaps, save once losing our way for a few minutes among the crevasses, again reached the Montanvert. Under stones on the glacier I found a species of beetle in some abundance,—Insects, chiefly Dipteræ are not unfrequently found in such situations. On the Glacier du Bossons, a few days before, I found many specimens of a species of Hemipteron, walking about the ice. From the Montanvert we descended, in the cool of the evening, to Chamounix.

PERTH PLANTS.

By JOHN SIM, A. B. S. Ed.

This year I am enabled to add a few rare plants to the Flora of Perth.

Anacharis alsinastrum, I have lately discovered growing in the river Tay; within sixty yards of my residence, there are a good many patches, and I see it is rapidly increasing in size and extending its border. I have recently been informed that this singular American vagrant is now plentifully spread over Aberdeenshire.

Petasites fragrans, occurs near Barnhill, at the foot of a hedge, about half a mile south from my house. It may be a garden escape, but its situation indicates the contrary. How it came there I know not, but though hitherto unobserved by me it is apparently a pretty long tenant in its present situation.

Silene armeria, was collected by my boy and brought to me by him a few weeks ago; he stated he found it growing by the wayside, about half a

mile from Perth, on the Old Scone road, but in small quantity. It may have escaped from a garden for ought I know. He only collected one plant as he said it was all he saw.

Sanguisorba canadensis. I observed this plant about a mile east of Perth, growing in a dry ditch several years ago, but passed it over unrecorded until a specimen or two of it was collected by Dr. White, Jun. Its situation is on the north side of the Tay, about fifty or sixty yards from its margin and beyond floodmark even at the river's greatest height. This plant has even more the appearance of being indigenous than either *Silene armeria* or *Petasites fragrans*, as it is much further distant from human habitations. Has it ever been observed under similar circumstances by any other British botanist? I am sorry that owing to personal ill health and severe domestic affliction I have been unable to procure specimens of these rarities for distribution among my botanical friends.

Bridge End, Perth, 24th August, 1866.

Reports of Societies.

QUECKETT MICROSCOPICAL CLUB.

The usual monthly meeting was held in the Library of University College, on the 28th ult. (September), W. Hislop, Esq., vice-president, in the chair.

A paper was read by Mr. R. T. Lewis, "On some of the microscopic effects of the Electric Spark," detailing a number of experiments made by him, between Dec. 1865 and the present time. They were suggested, in the first instance, by the circumstance of having placed a card, which had been perforated by powerful Induction sparks, upon the stage of the microscope, to examine the raised burrs produced, when he was surprised to observe that all such holes as were clear were of pentagonal shape. In consequence of this observation pieces of paper and card of various kinds were produced, and perforated by sparks, of various lengths, from different Induction Coils, in all of which cases the pentagonal form of hole prevailed: and the same result was also found when discharge sparks from a Leyden jar charged with frictional electricity were employed. Subsequently a contrivance (which was described) enabled these experiments to be repeated upon the stage of the microscope. The effect of sparks upon paper chemically treated, the leaves of plants, mica, thin glass, film of egg, &c., was described; from which it appears that the perforations were generally five-sided, without regard either to the shape of the points between which the sparks were discharged, or to the texture of the material perforated. The paper was concluded by a few remarks to the effect that electricity, thus brought under the microscope, would be found to afford both amusement and instruction, whether in connection with the use of the micro-spectroscope, or in observing the effects of electrolytic action.

Eight members were elected, and twenty-eight gentlemen proposed for membership.

The meeting terminated with a conversazione; and amongst other objects exhi-

bited was one of very great interest viz. :— the ooze, from the bottom of the Atlantic, brought up with the Cable of 1865, composed of very much the same elements as those found in the Barbadoes earth. Specimens may be obtained from Mr. Collins, the optician, of Great Titchfield Street.

NORWICH NATURALISTS' SOCIETY.

At a Meeting of this Society held Aug. 27th, Mr. J. J. Rice, president, in the chair, Mr. Henry Starling, of Norwich, was elected a member. Mr. T. E. Gunn exhibited a collection of plants and fruit from Demarara, in South America. Mr. H. Hickling exhibited a fine example of the slow-worm, which he had caught during the day. Messrs. Rice, Perry, and Gunn exhibited cores of fresh captured specimens of *Coleoptera* and *Lepidoptera*.

A meeting was held on the 24th of September, when the chair was occupied by the president, Mr. J. J. Rice. Mr. T. E. Gunn, hon. sec., read a paper on "Birds' Eggs, their variations and malformations." Birds' eggs are variously tinted and mottled, in which we see a design, in the adaptation of the colours, for the purpose of concealment, according to the habits of the various species. As a rule the eggs of those birds that nest in holes, or construct nests that almost completely exclude the light, are white (for example, of the former Owls, Woodpeckers, &c.; of the latter, Dippers, Wrens, and Titmice); as is also the case with those birds that constantly sit on their eggs, or leave them only for a short time during the night (Harriers and Pigeons for example). On the other hand, a greater part of those nests that are in exposed situations have eggs varying in tint, shade, and markings in a remarkable degree, corresponding with the colour of objects surrounding them; thus a greenish or bluish hue is the prevailing colour in most species that form their nests in grasses, sedges, reeds, &c. (for example, Swans, Ducks, Grebes, &c.) A brown-mottled colour is found in those eggs that are deposited amongst heath, shingle, or stones (for example, Plovers, Sandpipers, and Gulls). As various as we have seen the colours of eggs, so also are their forms; some oval (as Hawks and Owls), some nearly round (as the Bee-eaters and Kingfishers), and others are large at one end the other tapering to nearly a point (as the Plovers). But from all these rules of nature there are a great many exceptions, which are, in a great measure, due to weak or diseased parent birds. As to the variation in hue, there is scarcely a species the eggs of which do not vary in some degree, more or less, from the general colour; for instance we have white, or very pale eggs, of those species the usual colour of which is very dark; others are finer or coarser marked, with more or less blotches, spots, and streaks, or varied shades. Mr. Gunn exhibited a collection of the eggs he principally referred to, which he remarked would better illustrate the subject. Of all the eggs of birds, none appear more subject to variation than those of the Black-headed Gull, or Shoulton Privit as it is familiarly called in the locality which forms one of its principal breeding resorts in this country, examples of which are from a pure white, and pale blue or green, to that of the blackest brown. He exhibited a good series of examples of this species. He then proceeded to enumerate the various deviations in their form, which is equally remarkable. Some are small and round, others long and narrow—these are usually the last of a set of eggs, and are in most instances quite devoid of yelk. He noticed a very curious example of the egg of the Dorking fowl, last season, that resembled a crome or handle of a walking stick. There are also what are commonly called double eggs, which are not of unfrequent occurrence amongst domestic fowls. In such cases, when the young are hatched, they present quite singular and varied

forms, some with one head and two bodies, others with double heads, some *minus* wings, legs and eyes. He also mentioned a most remarkable instance of the egg of the Black-headed Gull, which he saw in the season of 1864, the particulars of which are as follows. A friend of his returning from a visit to Skoulton mere, near Ilingham (the favourite breeding resort of this species, mentioned above), brought with him several scores of eggs for the table; he obliged a neighbour with some, who, eating one, one morning to his breakfast, was much surprised when the spoon struck against some hard substance, which proved to be another egg in the interior. He had an opportunity of seeing and examining the egg, and observed that it was of the usual size and colour. The parasite (if it may be so termed) was laying in an oblique position in the centre of the yelk, it was about two inches long, and rather narrow, being quite detached from the outer shell, but exhibiting a similar hue and markings. The explanation of this singular occurrence was, that the inner egg was perfectly formed first, but not being large enough to provoke the uterus to exclusion, new matter gathered round it for another egg, and was the more easily supplied, because so little was spent on the former. He referred to a similar instance on record in an old volume of the *Gentleman's Magazine*, published in 1749, but in this instance the shell of the inner egg was attached to that of the outer. Messrs. J. Perry and J. Pert also exhibited some malformed examples of bird's eggs. Mr. Gunn also exhibited a collection of fossils consisting of vertebræ and shells collected by Mr. Franklin, at the Barton pits, near Cambridge, which Mr. Bayfield kindly described to the meeting. Many of the specimens were in excellent preservation. At the close of the meeting a vote of thanks was passed to the various contributors..

A meeting was held October 8th, the president in the chair, when the following new members were admitted: Messrs. J. E. Barnes and W. H. Brooks, of Eaton, near Norwich. The chairman read some excellent extracts from a paper on "The Architecture and Transformations of the various orders of Insects," after which a very interesting discussion took place. Mr. Gunn exhibited a beautiful variety of the Greenfinch shot at Bloefield, on the 5th inst.: it was white, faintly tinged with yellowish green. Several boxes of entomological captures were also exhibited.

HIGH WYCOMBE NATURAL HISTORY SOCIETY.

The first evening meeting of the second winter session, 1866-7, was held on the 9th ult., at the house of the president, the Rev. T. H. Browne. There was a large attendance of members and friends, and a number of interesting objects were exhibited. An introductory paper was read by the president, in which the approaching departure of the secretary, Mr. Ullyett, was feelingly alluded to. The latter gentleman then gave an interesting paper on Geology, chiefly explanatory of various erroneous notions commonly entertained on the subject; after which he formally resigned his office as secretary. Mr. Britten, who was unanimously elected to the vacant post, then read a short summary of the progress made in the investigation of the Botany of the district during the past season, from which it appeared that the Wycombe Flora had been increased by the following seven species: *Cerastium arvense*, *Vicia gracilis*, *Onopordum Acanthium*, *Lactuca virosa*, *Erica cinerea*, *Cuscuta Epithymum*, *Myosotis cæspitosa*. The objects exhibited were then inspected, and the meeting, after the usual vote of thanks had been rendered, broke up. A full report of this and subsequent meetings, with selections from the papers read, will be found in the Quarterly Magazine of the Society.

Observations.

The Pied Oystercatcher at Huddersfield. Mr. G. P. Brown, a perserving member of the Huddersfield Naturalists' Society, succeeded in capturing a splendid specimen of this bird, in this neighbourhood, on Monday, the 8th October, instant.—J. TINDALL.

LAND AND FRESH-WATER MOLLUSKS, COLLECTED AT KNARESBOROUGH AND ITS VICINITY.

As I am induced to think a catalogue of land and fresh-water shells may prove acceptable to conchologists, who may pay a visit to Knaresborough and its vicinity, I send you the following list, (Jeffrey's nomenclature.) I see in a previous number (51) of the *Naturalist* a local list of fresh-water mollusks has appeared, and I may truly say local lists afford valuable information respecting the geographical range of molluscan fauna. The conchologist who investigates the neighbourhood of Knaresborough, may find himself as well repaid for his trouble, in conchology and botany, as I have been, that locality presenting many attractions to the naturalist.

1. *Helix aspersa.* Very fine ones side of the beautiful walk on the banks of the river Nid, and Grimbald crag.
2. *H. nemoralis.* Abbey Plain and the Crag.
3. *H. nemoralis,* var. *hortensis.* At the top of Abbey Plain, and Grimbald Crag. Variously coloured, viz, flesh, yellow-coloured, and five banded.
4. *H. nemoralis,* var. *hybrida.* On the Plain. Scarce, only two specimens.
5. *H. virgata.* A few, Grimbald Crag.
6. *H. ericetorum.* Abundant, fine specimens, Grimbald Crag.
7. *H. ericetorum,* var. *alba.* Grimbald Crag. Five specimens.
8. *H. caperata.* Very fine, also one monstrosity, at the foot of Grimbald Crag.
9. *H. arbustorum.* Top of Abbey Plain and the surrounding fields. Fine specimens.
10. *H. arbustorum,* var. *flavescens.*
11. *H. arbustorum.* var. *major.*
12. *H. arbustorum,* var. *alpestris.* Same places as the former.
13. *H. rotundata.* Fine specimens.
14. *H. rotundata,* var. *Turtoni.* Abbey Plain.
15. *H. hispida.* Abbey Plain.
16. *H. rufescens.* Abbey Plain.
17. *H. rufescens,* var. *albida.* Abbey Plain.
18. *H. lapicida.* Grimbald Crag and Abbey Plain.
19. *H. lapicida,* var. *albina.* Grimbald Crag. Mr. Jeffrey says it has not been noticed as British.
20. *H. pulchella.* Grimbald Crag. Found also by Mr. J. Beevers, same time and place.
21. *Zonites cellarius.* Under stones, Abbey Plain.
22. *Z. alliarius.* Under stones, Abbey Plain.
23. *Spærium cornea.* Exceedingly fine specimens. Hesp Pond.
24. *Limnæus palustris,* var. *Corvus.* Fine specimens. Hesp Pond.
25. *Bulimus obscurus.* Grimbald Crag.
26. *B. obscurus,* var. *alba.* Grimbald Crag. Found by Mr. Beevers, in my presence.

J. BLACKBURN, 42, St. Mary's Street, Mabgate, Leeds, Sept. 3, 1866.

Helix lapicida.—As Went Vale appears to be a noted place for the above named mollusk, I have pleasure in announcing to Conchologists that I have taken or collected it, but not so abundantly, rather more than seven miles from Leeds, about a quarter of a mile on the right hand side of the road leading from Leeds to Wetherby, also at Knaresborough, and again on the 3rd of the present month, betwixt North Lea and North Stainley, and a few miles further on the same road, from off an old wall, rather abundant, and in company

with *Clausilia rugosa*, var. *dubia*, Jeff., in latitude 54 deg. 11 min. north, that is betwixt Ripon and Masham. I have no doubt if that locality were well searched shells might be found in great abundance. —J. Blackburn, Leeds, Oct. 22, 1866.

Scarcity of Butterflies in 1866.—The summer of 1865 was peculiarly favourable for the production of lepidopterous insects, but the past one seems to have been just the opposite, for in the neighbourhood of Plymouth some of our common butterflies have appeared only in small numbers. I may mention the Lesser Tortoiseshell, *Vanessa urticæ*, as one of those that have not been as abundant as usual, and I think the Meadow Brown, *Hipparchia Janira*, also, whilst the less common Ringlet, *Hipparchia Hyperanthus* has been scarce indeed, and that gay production of the autumnal season the Clouded Yellow, *Colias Edusa*, I have not seen at all. This insect occasionally appears here in considerable numbers, but more frequently in no very great abundance, though rarely is it that none are seen. In 1865, it and the Painted Lady, *Cynthia Cardui*, were two of the common butterflies of the season, and flitted about until the end of October. The graceful Humming Bird Hawk Moth, *Macroglossa stellatarum*, was that summer constantly hovering above Blue Salvias, and other nectar-secreting flowers in our garden, but throughout this it has been so scarce, that I have not seen a dozen specimens. One butterfly, the lovely Azure Blue, *Polyommatus argiolus*, appeared in August last, in numbers unusual for the second brood, which seems generally to be less numerous than the April one, and in some years not to be produced at all.—T. R. Archer Briggs, 10, Torrington Place, Plymouth, October 12th, 1866.

Cidaris papillata in the Stomach of a Cod.—I have lately seen two fine specimens of the "Piper Urchin" *Cidaris papillata* which was taken from the stomach of a cod a few weeks ago, at the deep sea fishing, about twenty-five miles N.E. of Unst. Although both specimens were of course much injured, the great length of the spines, some of which measured two inches and a quarter from root to tip, left no doubt as to their species. One can scarcely imagine a more uninviting morsel than a piper urchin, yet neither of these had apparently caused any trouble, for when first discovered in the stomach of the cod, half of the large spines which still remained attached to the shell were doubled forward towards the mouth of the fish. This species seems to be rare even in Shetland, at least it is seldom brought ashore, for although the Yell and North Marine men occasionally bring them up on their hooks along with numerous varieties of corals and sponges, yet, notwithstanding the certainty of a handsome reward if they would only preserve them, they unhesitatingly threw them overboard for fear of destroying the "luck" of the boat. I have now and then managed to procure specimens, but these have soon become spoilt by the dropping off of the spines. Perhaps some reader of the *Naturalist* will kindly suggest a means of preventing this in future.—Henry L. Saxby, Baltasound, Shetland, October 9th, 1866.

Geranium striatum, L. *wild in Cornwall.* —During the month of July I had the good fortune to find this plant in no less than three distinct localities in Cornwall; twice at Penzance, and once in a hedge-row between Wadebridge and St. Teath, in North Cornwall. As regards the Penzance localities, in one of them it certainly could not be else than wild, being far away from both houses and gardens. This is likewise the case with the Wadebridge specimens. I do not myself see the slightest reason for excluding it from our Flora; although I have observed that some authors entirely omit it, and others just mention it casually, as having been found as an escape from a garden, &c. Hooker and Arnott observe,

in p. 84 of their "British Flora," that it is "a plant almost peculiar to a southern clime, and cannot be expected to be indigenous with us; but as *Trifolium Bocconi*, *Erica vulgaris*, and other southern plants are found wild, though rarely, in Cornwall, why should not *G. striatum* be counted indigenous too?—J. C. Melville, Oct. 3, 1866.

[In the "Journal of Botany" for Sep. last, is a letter from Mr. A. H. Church, in which he states "I have found repeatedly in different places, all far away from cultivation, a geranium, which I cannot help thinking is *G. striatum*. It is sparingly distributed along the coast of South Cornwall, some miles on either side of Charlestown, near St. Austell. If my determination of the species is correct, the plant must be *truly* wild." This is further testimony to Mr. Melville's opinion.

The species is described in "Botanical Magazine," ii, p. 55 and has been previously observed in Cornwall, also at Trevrew, near Llanrwst, in North Wales.—Phyt. N.S., i, p. 57.—Eds. *Nat.*]

Exchanges.

I have good specimens of the following, for which I shall be glad to receive offers of exchange:—*L. putrescens*, *A. obelisca*, *H. hispida*, *D. conspersa*, *D. carpophaga*, *S. anomala*, *T. gracilis*. *T. piniperda*, and many others. My wants are many.—T. Terry, 2, Princess Street, Babbicombe, Torquay.

I have a large number of *H. Actæon* (good specimens both set and unset) and numerous other duplicates, for which I should be glad to receive offers of exchange.—Address, Miss Bessie Dibben, Bishopstone, Salisbury.

I have for exchange duplicates of the following insects, in good condition: *A. Paphia*, *A. Aglaia*, *A. Galathea*, *L. Ægon* (unset), *N. Lucina*, *H. Actæon* (unset), *S. ocellatus*, *S. populi*, *A. atropos*, *S. ligstri*, *V. maculata*, *N. Ziczac.*—Miss Ellen Dibben, Critchill, Wimborne, Dorset.

Original Articles.

THE NATURE AND COLOUR OF BLOOD.

By E. Foxton-Firby.

As is universally known the blood is a liquid of a beautiful scarlet colour, and peculiar odour, circulating through the heart, arteries, and veins of animal bodies, serving for the nourishment of all their diversiform organs, and the support of life. The nutrient fluid, in scientific nomenclature the *liquor sanguinis*, when in a healthy condition consists of the following chemical constituents,—primarily of water, holding, in a dissolved condition, albumen, fibrin, oleic, stearic, lactic, phosphoric, sulphuric, and hydrochloric

acids, in combination with soda, potash, ammonia, lime, magnesia, and a small portion of phosphorized fat ; secondly of certain minute globular particles termed *corpuscles*, which float in the *liquor sanguinis*. Now to undersand how these minute globular bodies are so marvellously adapted to nourish the animal body, whether it be one of the largest of mammals, or the tiniest of earth-creatures bearing the Divine Imprint, let us place before our eyes the constituent parts of this marvellously complex and life-holding fluid. Let us open a vein, and take from the body a portion of blood. If we allow it to remain at rest for ten or fifteen minutes a remarkable change is at once observable. By degrees it gelatinizes and forms spontaneously coagulum and serum. The fluid has become a solid, and this is the only change which is yet palpable to our senses. After the expiration of a few hours we find that the congealed mass has acquired a greater degree of consistence, and, as the effect of this contraction, is surrounded with a semi-translucent yellowish fluid, which is called *serum*. This serum consists of water, albumen, and the various saline matters ; coagulum, of the fibrin and corpuscles. Now what is there in this blood to produce this coagulation ? Why does it not remain in its primary state of fluidity, as when first drawn from the living body ? There must be some peculiar law to account for this metamorphosis. In itself, and as seen flowing in the veins and arteries of a living creature, it appears a colourless fluid, with minute red particles which give the blood its beautiful scarlet hue; and so long as it remains in a fluid state it holds in solution a particular substance called *fibrin*, which, in its ultimate composition, differentiates little or nothing from albumen, or the white of an egg. This substance is distributed through the whole of the body, but is found chiefly in the blood, because that important fluid, in its course and flow, supplies to every individual part of the complex structure the materials essential to its developmental progress and growth. Take the blood from the living structure, and the fibrin remains no longer in solution. Instead of being diffused and interpenetrating to various parts of the living organism, it contracts and coagulates, till it has pressed out the serum by the mutual attraction of its homogeneous particles. The congealed blood, under the microscope, presents a peculiar and unique arrangement. It is not a mere aggregation, or promiscuous accumulation of particles, but a beautifully reticulated disposition of fibres crossing and intersecting one another at every conceivable angle. This *bizarre* arrangement may be seen in the common egg-shell, which is nothing more than so many layers of fibrous tissue enveloping the

albumen, and forming that thin membrane between the exterior shell-covering and the nucleotic germ-mass or cicatricula.

The blood corpuscles are of two kinds—red and white, the red being the more numerous. In man, the red corpuscle varies in size from one four-thousandth of an inch to one twenty-eight-hundreth of an inch. We are indebted to Leuwenhoeck and Malpighi, whose researches were made soon after the invention of the microscope, for the discovery of these corpuscular bodies in the blood.

The blood is the product of the elaboration of chyle; and acquires all its nutritive and life-giving qualities in respiration. By means of the arterial vessels, it penetrates to all the organs, distributing nutrition to every organic tissue. The colour, as well as the composition of the blood, varies in different sections of the animal kingdom; red in the Vertebrates and Annelides, it is white and pellucid as water in Insects and Crustaceans; bluish-white in Mollusca, yellowish in Holothurians and some other Invertebrates. This difference in colour arises from the corpuscles, which are red in some cases, and in others white or straw-coloured, or bluish-white. The temperature of the blood of various animals according to the researches of Rudolphi and Tiedemann, is :—

	Fahr.		*Fahr.*
Great Titmouse ...	111.25	Squirrel	105
Swallow	111.25	Ox	104
Ducks and Geese ...106 to	111	Ape	103
Common Hen ...102 to	109	Dog	101
Eagles, Hawks, &c....104 to	109	Cat ... ...98 to	103
Pigeon ... ...106 to	109	Elephant	99
Gull	100	Horse	98.24
Bat	106	Man	98

The blood contains oxygen, nitrogen, and carbonic acid, and in considering the chemical constitution of the blood, it may, as we remarked before, be regarded as consisting of two parts,—the *liquor sanguinis*, and the blood corpuscles floating therein. The following tabular synopsis of the composition of these two parts is based on the analysis of Schmidt and Lehmann and is a modification of that quoted in Miller's *Elements of Chemistry*, Vol. III. p. 689 :—

Specific gravity of blood corpuscles 1.0885

Composition of Blood Corpuscles.

Water	.688
Solid Constituents—	
Hæmatin	16.75
Globular and Cell membrane	282.22
Fat	2.31
Extractive matter	2.60
Chlorine	1.686
Sulphuric acid	0.069
Phosphoric acid	1.134
Potassium	3.328
Sodium	1.052
Oxygen	0.667
Phosphate of lime	0.114
Phosphate of magnesia	0.073

Specific gravity of *liquor sanguinis*	1.028

Composition of Liquor Sanguinis.

Water	902.90
Fibrin	4.05
Albumen	78.84
Fat	1.72
Extractive matters	3.94
Chlorine	3.644
Sulphuric acid	0.115
Phosphoric acid	0.191
Potassium	0.323
Sodium...	3.341
Oxygen	0.403
Phosphate of lime	0.311
Phosphate of magnesia	0.222

Taking the blood as a whole, Baron Liebig gives its component parts as follows :—

Water	80
Solid matter	20

The solid matter, on being incinerated, gives one and one-fourth to one and one-half per cent. of ash, which consists of one-half of sea-salt, one-tenth of peroxide of iron, and the rest of lime, magnesia, potash, soda, phosphoric acid, and carbonic acid.

Having thus far imperfectly explained the nature and chemical compo- of the blood, as at present known, we shall now proceed to a consideration of the nature and phenomena of the *colour*, respecting which an observation made by Hoppe, followed by a most beautiful and scientific investigation by Professor Stokes, has recently thrown a new light on this abstruse branch of physiological inquiry. We think the readers of the *Naturalist* will feel some interest in a sketch of the results which have accrued to physiology from the discovery. This we give all the more willingly, because we believe that it has not hitherto received that amount of attention from physiologists that its interest and importance demand.

If a pure ray of white light from the sun, or, for the sake of experiment at any time, from a lamp, be admitted into a dark room through the triangular piece of glass, called a prism, the ray as it emerges from the prism is seen to have undergone a most peculiar change. Instead of being refracted altogether and appearing still as a white ray, it is divided into several rays of very vivid colours. In this state it is said to be analyzed, or decomposed into its elementary rays. Each ray has its own peculiar tint, so that the number of possible shades of colour is, as far as we know, infinite ; but for practical purposes we may and do divide them into seven distinct colours, viz.,—red, orange, yellow, green, blue, indigo, and violet. White light is the result of the union or blending together of these various colours. Now, when a white ray passes through a prism, the coloured rays of which it consists are bent or refracted, and the peculiarity of the matter is that each coloured ray is refracted at a different angle, the red least, then green, and violet the most of all. The result is that if a sheet of white paper be held up on the side of the prism furthest from the light, and in a peculiar position, we see reflected upon it, not a pencil of white light, but a regular series of colours all blending into one another, the red being at one end and the violet at the other. This is the phenomenon which has risen within the last few years into such immense scientific importance, under the name of solar or prismatic spectrum.

It was observed by Hoppe that, if a weak solution of blood was interposed between the light and the prism, the spectrnm was no longer continuous.

Two well-marked black bands now made their appearance in the green portion of the spectrum, and these had exactly the same position, whatever kind of blood was employed. No other known substance gave similar lines in the spectrum, and the experiment therefore became at once a valuable means of detecting the presence of blood. Here the matter rested, until Professor Stokes, struck with the phenomenon, set to work to investigate it further. It was evident from the very first that the peculiarity must be caused by the colouring matter of the blood. For many years before this a red substance called *hæmatin* had been known, which could be prepared by a chemical process from the blood, and it was therefore universally supposed that the colour of the blood was due to this hæmatin. Hence it was clear that a solution of hæmatin ought to give the same spectrum as the blood from which it was obtained. But on trying the experiment, Professor Stokes soon found that this was not the case. Certain opaque lines, were, indeed, seen in the hæmatin-spectrum, but they were utterly different, both in number, intensity, and position from the lines in the blood-spectrum.

Here, then, was an important discovery, and one which upset at once a universally received physiological tenet. Hæmatin is not present in the blood but is simply a substance formed from it by the elaborate and difficult chemical operations by which it is prepared.

Having established this point, it is obvious that the next step to be taken was to endeavour to learn something of the true blood-colour, the unknown something which caused the two black lines in the normal blood spectrum. Not being a professed chemist, Professor Stokes did not attempt to isolate the colouring matter, but left that task to future investigators. As however, its existence could not be doubted, he gave it the name of *Cruorine*, to distinguish it from the hæmatin already known.

And now followed a series of experiments upon the nature of cruorine, which revealed some most curious and important facts. In order to make them intelligible to the non-physiological reader, it will be necessary to point out in a few words the leading characteristics of the blood in its circulation through the system. As the blood flows on its ceaseless course, it is carried, as every one is aware, through the lungs. In the minute capillary blood-vessels through which it here passes it is separated by only a thin wall of moist membrane from tiny air-cells which communicate with the external air through the bronchial tubes, and in and out of which air is continually being pumped by the act of respiration. The blood which enters the lungs has a dark purple colour, and is known as *venous* blood; but when it emerges, and

is carried back to the heart, it has acquired a scarlet tint, and is distinguished as *arterial* blood. In spite of the number of researches made on the subject, great doubt has always existed as to the precise nature of the change which is effected in the lungs. This much is certainly known, that in some way or other oxygen is absorbed by the blood, that this oxygen combines with carbon and hydrogen, and that this combination produces carbonic acid and water, both of which are thrown into the atmosphere by the act of expiration. Moreover, it is certain that the heat of the body is entirely due to this constant oxidation, which is therefore exactly analogous to the combustion of a lamp or candle. But how is the oxidation effected? Does the oxygen combine directly with the carbon and hydrogen as soon as it comes in contact with them, so that in fact, the whole combustion is performed in the lungs; or is the oxygen first dissolved by the blood, which it is constantly oxidizing in all parts of its course? The first view has been abandoned for years, in consequence of one fundamental objection to it. If the whole of the combustion took place in the lungs, it is evident that the lungs and heart ought to be materially higher in temperature than any other part of the body. But this is not found to be the case. There is but a trifling difference in temperature between the heart and the most remote vessels of the vascular system, so that the probability seems to favour the idea of a continuous oxidation in all parts of the body.

Our readers will now be in a position to understand the exact bearings of Professor Stoke's discovery. They will perceive that the gradual alteration of colour from bright scarlet to dark purple which blood undergoes as it flows through the vessels is attended by a constant loss of oxygen, which oxygen is employed in the formation of carbonic acid and water. This appeared to indicate the existence of two varieties of cruorine, a scarlet and a purple kind, the latter containing less oxygen than the former. The following experiment demonstrated the truth of this theory. A little clear solution of scarlet blood was placed in a tube, and the two lines in its spectrum observed. A liquor had been previously prepared by adding tartaric acid and caustic potash to a solution of protosulphate of iron (green vitriol.) Such a liquid has a pale sea-green tint, has no perceptible effect on the spectrum, and, above all, has a most powerful affinity for oxygen, which it will absorb rapidly from the air, if exposed to it. A little of this solution was now added to the blood, and the result was that its scarlet colour disappeared almost immediately, and a purple tint just like that of venous blood succeeded it. It was self-evident that the scarlet cruorine had given up oxygen to the

iron-solution, and had been reduced to the purple variety. The purple liquid was now examined with the prism, and the first glance showed that the spectrum was entirely changed. The two lines had vanished, and instead, there was now seen a single line rather less intense than the original ones, and in a position about midway between them. This, then, was clearly the spectrum of purple cruorine, and it could be readily distinguished from that of the scarlet kind. The tube was now shaken with air, so as to bring oxygen in contact with the cruorine. The scarlet colour re-appeared instantaneously, and in the spectrum the two lines were found to be just as distinct as ever.

This, however, was not the end of the matter. On allowing the tube to remain at rest for a short time, the purple tint returned, and the spectrum again changed, both being, however, restored to their original condition by agitation. The process, may in this manner, be repeated a number of times, until, in the end, the whole of the iron-solution becomes oxidized, when of course its power ceases.

Here, then, we have a very simple and beautiful explanation of the mode in which oxidation is carried on in the blood. Cruorine is evidently a substance which has the power of combining with oxygen, and giving it up again with about equal facility. Blood containing a good deal of purple cruorine (although a large proportion always remains scarlet) passes into the lungs. Here as we before remarked, it is only separated from the air-cells by a thin membrane kept moist by the blood. The oxygen of the air is dissolved by the water of the membrane, and in this way a constant supply of oxygen is transmitted to the blood. Here it singles out and attracts the purple cruorine, combining with it and converting it into scarlet cruorine. In this state, with all its cruorine in its perfectly oxidized form, the blood sets out from the heart on its race through the body. But these conditions do not last long. The cruorine soon begins to impart some of its newly gained oxygen to the oxidizable matters in its vicinity, which are in this way transformed into carbonic acid, water, and, in all probability, other more complex bodies. By the time the blood gets back to the heart, a good deal of its cruorine has been deoxidized, and hence the dark colour of venous blood. It is due entirely to the presence of purple cruorine. In the lungs, the carbonic acid and a portion of the water are thrown off, and a fresh supply of oxygen taken in, so that cruorine plays the part of a conveyor of oxygen from the air to the oxidizable materials, which last, although unable to combine directly with oxygen, can yet abstract it easily enough from cruorine.

The heat produced in this slow and continuous burning is exactly equal to that which would be evolved during more direct oxidization.

The importance of these discoveries will be apparent to all. They open out a new path in physiology, and one which, if followed with vigour, can hardly fail to be attended by the most brilliant results.

Victoria Terrace, Headingley near Leeds.

NOTES ON NORFOLK ORNITHOLOGY.

By T. E. Gunn.

From July 31st to October 31st, 1866.

Hobby. An adult specimen, (a male) was shot on the 6th of September last, at Fundenhall. Its stomach on dissection proved to be filled with the remains of a young Nightjar, *Caprimulgus Europæus.*

Shorteared Owl. I have seen but one example (so far) of this species this season.

Great Grey Shrike. On the 23rd of October, my friend Mr. Arthur Taylor forwarded me a nice example of this species that had been killed a day or two previous in the vicinity of East Harling railway station. Dissection proved it to be an adult male.

Migrants. Our winter visitors made their appearance as usual in October. The bramblings, lesser redpoles, and siskins appear pretty abundant. The mealy redpole is more plentiful this season than last ; the fieldfares, Redwings, Jack snipes, &c., have also arrived.

Green Sandpiper. An immature female was killed on the 3rd of August, at Egmore, near Wells. A second individual (a female) was shot at Rackheath, on the 24th of the same month ; a third, also a female, was obtained on the 10th of September, at Little Fransham.

Bartailed Godwit. An immature female shot on Holkham beach on the 12th of September.

Cormorant. An immature specimen, a female, was killed on the 12th of October, at Ormesby broad. From information I have received this appears to be the only individual that has been known to occur in that locality for the last sixteen years. In examining the above specimen the gizzard appeared empty, with the exception of a number of worms, which

were alive. I counted as many as eight that measured as much as two inches in length, they had all firmly fixed themselves to the inner membrane of the stomach, and were with great difficulty removed without injury.

Great Blackbacked Gull. An adult male was obtained somewhere on our coast about the 15th of September. Contents of stomach, remains of an eel, some pieces of tallow, and a mixture of matter consisting of fish-bones, seaweed and a muddy substance.

Lesser Blackbacked Gull. Two immature specimens occurred, one on the 1st and the other on the 17th of October, the stomach of one I examined contained only a few fish, and some of its own feathers.

VARIETIES.

Blackbird. A piebald example a male at Shotisham, October 19th.

Skylark. A beautiful pure white variety, a female, was shot on the 28th of October, at Sizeland, near Loddon. Its eyes were of the usual hue of ordinary birds, which is I think rather singular, as all previous white varieties of birds that have passed within my notice had either pink or red eyes.

Sparrow. October 5th, a well marked piebald specimen.

Green Linnet. A beautiful specimen, a female, was sent me on the 5th October. It was killed a short time previously by Mr. Coleman, at Bloefield ; its entire plumage was white, slightly tinged with pale greenish yellow on its back, upper wing coverts, and breast. I exhibited this specimen at a meeting of the Norwich Naturalists' Society. See *Naturalist* vol. iii. page 97.

3, *West Pottergate, Norwich.*

NOTES ON NORFOLK ENTOMOLOGY.—*LEPIDOPTERA.*

By T. E. Gunn.

Part IX.

Tortices.

Halias prasinana. Not uncommon and distributed. Ranworth, Horning, Cawston, Ketteringham, Beccles, and around Norwich. I have found the imago at rest on the leaves of the alder.

H. quercana. Rare. Beccles, Mr. W. M. Crowfoot. Ranworth, Mr. Winter.

H. clorana. Same localities as last.

Sarrothripa revayana. Rare. Cawston, Rev. T. H. Marsh.

Tortrix pyrastrana. Very common and distributed.

T. cratægana. Uncommon. Cawston.

T. Xylostrana. Common. Cawston.

T. sorbiana. Common. Ranworth, Cawston, Horning.

T. rosana. Common. Ranworth, Cawston, Cringleford.

T. dumetana. Uncommon. Cawston, Rev. T. H. Marsh. I have taken it about Norwich.

T. transitana. Uncommon. Cawston.

T. cinnamomeana. Common. Cawston, Norwich.

T. heperana. Common. Cawston, around Beccles.

T. ribeana. Not uncommon. Cawston, Ketteringham, Cringleford, and Norwich. I have a variety.

T. corylana. Common. Cawston, Beccles.

T. unifasciana. Common. Ranworth, Horning, Cawston.

T. costana. Rare. Ranworth, Mr. Winter.

T. icterana. Common. Beccles, Mr. Crowfoot. Cromer, Rev. T. H. Marsh. Larvæ in leaves of Coltsfoot.

T. viridana. Common and distributed. Ramworth, Horning, Cawston, and around Beccles, and Norwich.

T. ministrana. Common around Beccles, Mr. W. M. Crowfoot.

T. adjunctana. Common. Ranworth, Beccles, Norwich.

Leptogramma literana. Uncommon. Cawston, Rev. T. H. Marsh.

L. scabrana. Rare. Cringleford, Mr. J. J. Rice.

L. boscana. Rare. Ranworth, Mr. Winter.

Peronea favillaceana. The Fens, Mr. Winter.

P. rufana. The Fens, Mr. Winter.

P. mixtana. The Fens, Mr. Winter.

P. schalleriana. Very common. Cawston, Ranworth, Horning.

P. variegana. Common. Cawston.

P. cristana. Uncommon. Cawston, Rev. T. H. Marsh.

P. hastiana. Common. Ranworth, Cawston.

P. umbrana. Rare. Cawston, Rev. T. H. Marsh.

P. ferrugana. Common around Beccles, Mr. Crowfoot.

P. aspersana. Common. Cawston.

Teras caudana. Common and distributed. Cawston, Beccles, and the Fens.

T. contaminana. Common. Cawston, and Mousehold Heath, Norwich. I obtained several varieties this season in the last named locality.

Dictyopteryx uliginosana. Rare. Cawston, Rev. T. H. Marsh. Cringleford, Mr. J. J. Rice.

D. læflingiana. Common. Ranworth, Horning, Cawston, and Norwich.

D. holmiana. Rare. Ranworth, Mr. Winter. Cawston, Rev. T. H. Marsh.

D. bergmanniana. Common and distributed. Cawston, Cringleford, around Beccles, and the Fens.

D. forskaleana. Common. Cawston, Beccles and the Fens.

Argyrotoza Conwayana, Common. Ranworth and Cawston.

Ptycholoma lecheana. The Fens, Mr. Winter.

Ditula hartmanniana. The Fens, Mr. Winter.

Penthina picana. Rare. Cawston, Rev. T. H. Marsh. The Fens, Mr. Winter.

P. betulætana. Rare. Cawston, Rev. T. H. Marsh. The Fens, Mr. Winter.

P. pruniana. Common. Cawston and Norwich.

P. ochroleucana. Rare. Cawston, Rev. T. H. Marsh.

P. cynosbana. Common. Cawston and Cringleford.

P. gentianana. Ranworth, Mr. Winter.

P. sellana. Uncommon. Cawston, Rev. T. H. Marsh.

P. marginana. Uncommon. Ranworth, Mr. Winter. Cawston, Rev. T. H. Marsh.

P. carbonana. Rare. Cringleford, Mr. J. J. Rice. Mr. Stainton in his Manual mentions this species as taken in Norfolk, but does not give the locality.

Antithesia salicana. Taken in the Fens, on the authority of Mr. Winter.

Spilonota occellana. Taken in the Fens, on the authority of Mr. Winter.

S. dealbana. Taken in the Fens, on the authority of Mr. Winter.

S. suffusana. Taken in the Fens, on the authority of Mr. Winter.

S. roscœcolana. Rare. Ranworth, Mr. Winter. Cawston, Rev. T. H. Marsh. Beccles, Mr. Crowfoot.

S. roborana. Rare. Cawston, Rev. T. H. Marsh.

Pardia tripunctana. The Fens, Mr. Winter. Around Norwich, Mr. R. Gunn.

Aspis udmanniana. Common around Cawston and Beccles.

Sericoris abscisana. Uncommon. Cawston, Rev. T. H. Marsh.

S. cespitana. Uncommon. Cawston, Rev. T. H. Marsh.

S. lacunana. Very common. Cawston and around Beccles.

S. daleana. The Fens, Mr. Winter.

S. micana. Common around Beccles, Mr. Crowfoot.

Mixodia Schulziana. The Fens, Mr. Winter.
Roxanana arcuana. Rare. Cawston, Ranworth.
Euchromia flammeana. Rare. Cawston, Rev. T. H. Marsh.
E. purpurana. Rare. Cawston, Rev. T. H. Marsh.
Orthotœnia antiquana. Rare. Cawston, Rev. T. H. Marsh. The Fens, Mr. Winter.
Eriopsela fractifasciana. The Fens, Mr. Winter.
Cnephasia lepidana. Common in the Fens.
Clepsis rusticana. Uncommon in the Fens, Mr. Winter.
Bactra lanceolana. Very common. Cawston, Rev. T. H. Marsh.
B. furfurana. The Fens, Mr. Winter.
Phoxopteryx siculana. Rare. Cawston, Rev. T. H. Marsh. The Fens, Mr. Winter.
P. biarcuana. Not uncommon and distributed.
P. comptana. The Fens, Mr. Winter.
P. myrtillana. The Fens, Mr. Winter.
P. landana. Common. Ranworth, Horning, Cawston.
P. Mitterbacheriana. Uncommon. Ranworth, Horning, Cawston.
Grapholita Paykulliana. Uncommon. Cawston, Rev. T. H. Marsh.
G. nisana. Common. Ranworth, Horning, around Beccles, Mr. W. M. Crowfoot.
G. nigromaculana. Rare. Fens, Mr. Winter. Cawston, Rev. T. H. Marsh.
G. trimaculana. Fens, Mr. Winter.
G. penkleriana. Rare. Cawston, Rev. T. H. Marsh. Ranworth, Mr Winter.
G. obtusana. Fens, Mr. Winter.
G. nævana. Very common, Cawston and the Fens.
Phlœodes tetraquetrana. Uncommon in the Fens, Mr. Winter.
Hypermecia angustana. Rare. Cawston, Rev. T. H. Marsh.
Pœdisca bilunana. Not uncommon. Ranworth, Cawston.
P. corticana. Not uncommon. Ranworth, Cawston.
P. profundana. Ranworth, Mr. Winter.
P. opthalmicana. Uncommon. Ranworth, Cawston.
P. solandriana. Uncommon at Cawston, Rev. T. H. Marsh. Common around Beccles, Mr. Crowfoot.
P. semifuscana. Common around Beccles, Mr. Crowfoot.
P. sordidana. Uncommon. Ranworth, Cawston.
Ephippiphora bimaculana. Uncommon. Cawston.

E. cirsiana. Uncommon. Cawston.
E. scutulana. Common. Ranworth, Cawston.
E. Brunnichiana. Uncommon. Cawston, Rev. T. H. Marsh.
E. turbidana. Ranworth, Mr. Winter.
E. trigeminana. Uncommon. Ranworth, Cawston.
E. tetragonana. Common. Ranworth, Cawston, and around Beccles.
Semasia Wœberana. Common. Cawston, and Ranworth.
Coccyx argyrana. Uncommon. Cawston and Ranworth.
Hensimene fimbriana. Uncommon. Cawston, Rev. T. H. Marsh.
Retinia buoliana. Very common. Ranworth, Cawston.
R. pinicolana. Uncommon. Cawston, Rev. T. H. Marsh.
R. turionana. Ranworth, Mr. Winter.
Carpocapsa splendana. Uncommon. Cawston. I have taken it around Norwich.
C. pomonana. Ranworth, Mr. Winter.
Stigmonota lunulana. Ranworth, Mr. Winter.
S. perlepidana. Uncommon. Cawston, Rev. T. H. Marsh.
S. composana. Ranworth, Mr. Winter.
S. trauniana. Uncommon. Ranworth, Cawston.
Dicroramphi politana. Uncommon. Ranworth, Mr. Winter. Cringleford, Mr. J. J. Rice.
D. sequana. Not uncommon and local. Ranworth.
D. petiverana. Common and distributed. Ranworth, Horning, Cawston. Around Beccles and Norwich.
Pyrodes rhediana. Ranworth, Mr. Winter.
Catroptria juliana. Uncommon. Cawston. I have taken it around Norwich,
C, hypericana. The Fens, Mr. Winter.
C. scopoliana. Not uncommon. Ranworth, Beecles, Mr. W. M. Crowfoot.
C. Hohenwarthiana. Common. Ranworth, Beccles.
Trycheris mediana. Fens, Mr. Winter.
Chorentes scintilulana. Fens, Mr. Winter.
Xylopoda fabriciana. Very common. Cawston, Ranworth.
X. pariana. Rare. Cawston, Rev. T. H. Marsh.
Eupœcilia nana. Uncommon. Ranworth.
E. hybridellana. Uncommon. Cawston.
E. angustana. Very common. Cawston.
E. rupicolana. Rare. The Fens, Mr. Winter.

E. flaviciliana. Rare. The Fens, Mr. Winter.

E. roseana. Uncommon. The Fens.

Xanthosetia Zoegana. Not uncommon and widely distributed. Ranworth, Cawston, Horning, Beccles, Cringleford, and Norwich.

X. hamana. Not uncommon and distributed. Ranworth, Cawston, Beccles, and Norwich.

Argyrolepia baumanniana. Uncommon. Cawston. Rev. T. H. Marsh. Ranworth, Mr. Winter. Norwich, Mr. R. Gunn.

A. cnicana. Uncommon. Cawston, Rev. T. H. Marsh.

Cochylis dipoltana. Ranworth, Mr. Winter.

C. francillana. Ranworth, Mr. Winter.

C. smeathmanniana. Uncommon. Ranworth, Cawston.

C. stramineana. Common. Ranworth, Cawston.

C. gigantiana. Uncommon. Cawston, Rev. T. H. Marsh.

Aphelia pratana. Common. Ranworth, Horning, Cawston, and Beccles.

Tortricodes hyemana. Common. Ranworth, Beccles, Mr. Crowfoot.

3, *West Pottergate, Norwich, October,* 1866.

Reports of Societies.

Queckett Microscopical Club.

The ordinary monthly meeting took place in the Library of the University College, on the 26th October, Ernest Hart, Esq., President, in the chair.

Mr. Highley, F.G.S., read a paper "On Shore Collecting," wherein he described the dress, and implements most suited for such explorations, how to search the sands, seaweeds, clefts in rocks, ledges, rocks-basins, and under boulders, and what animals, microscopic or otherwise, were most likely to be found in each of these several retreats for the Ocean's inhabitants.

A Conversazione followed at which many objects of interest were exhibited, amongst which was a new form of microscope of novel construction by Mr. Cole.

Nineteen members were proposed, and twenty-eight new members were elected.

Queckett Microscopical Club.

The monthly meeting was held at University College, on the 23rd November. Ernest Hart, Esq., president in the chair.

Mr. M. C. Cooke, read a short paper on the best method of transmitting slides by post.

Mr. S. J. M'Intire, read a paper on the different kinds of Poduræ, in which he described their history and habits, how to mount and examine their scales, and his experience in breeding them for microscopical investigation.

Mr. N. E. Green, read a paper on Melicerta, being the result of long and careful enquiry into the habits and structure of this minute form of animal life, under high powers and in thin glass cells especially contrived for the purpose.

Nineteen members were elected, and the proceedings terminated with a conversazione.

High Wycombe Natural History Society.—*Seeond Winter Session*, 1866-67.—The second evening meeting was held on Nov. 13th, at the house of John Parker, Jun:, Esq., when there was a good attendance of members and friends. After tea, the various objects exhibited were inspected. Among them were a case of Lepidoptera and another of Coleoptera (chiefly local) lent by the President. Several specimens of Reptiles preserved in spirits, and a collection of plates of British Plants. Morris's "British Birds" and "British Butterflies" were lent by Dr. Bowstead. A paper by Mr. W. R. Tate. of London, on "British Reptiles" was then read by the secretary, after which the President gave a short address on "Diatoms and Desmids" illustrated by diagrams and sketches. Various Diatoms were also exhibited under the microscope, in addition to objects illustrative of Mr. Tate's paper. The usual votes of thanks brought the meeting to a close.

Observations.

Geranium striatum.—At pages 46-48, of *Naturalist*, vol. ii. I have given a full record of the various localities of this plant and have there expressed an opinion relative to its probable nativity coinciding with that of Mr. Melvill. The Penzance locality appears to be one of very old standing, and it has been considered to be "truly wild in Jersey," *Phyt.* 635, *N.S.* Several additional Cornish and Devon localities will be found at the pages referred to.—James Britten.

List of Plants Collected in Cornwall in August, 1866.

List of some scarce plants met with in the first week of August, in and about Penzance, Mount's Bay, St. Michael's Mount, Marazion, and the Marshes, Land's End, and the Lizard :

Allium Schœnoprasum, on the rocks at the Rill near Kynance Cove.
Bartsia viscosa, Bogs at Marazion.
Borago officinalis, St. Michael's.
Chenopodium botryodes, Loe Pool.
Cicendia filiformis, near Penzance.
Cochlearia danica, St. Michael's.
Corrigiola littoralis, Loe Pool.
Daucus maritimus, Logan Stone.
Drosera intermedia, near Penzance.
D. rotundifolia, near Penzance.
Elatine hexandra, Loe Pool.
Erica ciliaris, Carelew Park, between Truro and Penrhyn.
Erica vagans, between Loe Pool and Helston, and at the Lizard.
Erodium maritimum, St. Michael's.
Eryngium maritimum, St. Michael's.
Euphorbia paralias, Mounts Bay.
E. portlandica, Loe Pool.
Genista pilosa, Lizard.
Hypericum Androsæmum, Loe Pool.
Illecebrum verticillatum, near Penzance.
Lastrea æmula, near Penzance.
Mentha rotundifolia, near Penzance.
Osmunda regalis, bogs at Marazion.
Petasites fragrans, Mount's Bay near Penzance.
Pinguicula lusitanica, near Penzance.
Rubia peregrina, Loe Pool.
Sagina subulata, Loe Pool.
Sanguisorba officinalis, between Helston and the Lizard.
Scilla autumnalis, Lizard.
S. verna, St. Michael's.
Scirpus fluitans, bogs at Marazion.
Sedum reflexum, walls near Penzance.
Sedum sexangulare, walls near Penzance.
Sibthorpia europæa, near Penzance.
Silene maritima, St. Michael's.
Tamarix anglica, St. Michael's and the Lizard.
Wahlenbergia hederacea, near Penzance.

When we visited this remote part of the kingdom, the season was far advanced, and the summer was both early and unusually dry and hot, hence several plants were invisible which are often seen at the end of July and the beginning of the following month.

The moorland species, viz.—*Cicendia filiformis*, *Pinguicula lusitanica*, and *Sibthorpia europæa*, were either past flowering or so minute as to be barely visible.

Allium Schœnoprasum, was very luxuriant on the rocks at the Rill half a mile west of Kynance Cove; and on the moor between this headland and the Cove, they were very small like the specimens from Northumberland. It is also remarkable that this rare species has, as yet been seen only in two counties, viz. :—on the north-east on the Kyloe Crags, and on the south-west on the rocks and heathy ground at the Rill.

The Chenopod from Loe Pool supposed to be *C. botryodes*, was not sufficiently advanced to be with certainty determined.

The fringed leaved heath is remarkable as being the rarest of English heaths, and also for its abundance where it grows.

Carelew Park the residence of Sir Charles Lemon is the station of this rarity. In the second week of August this vegetable beauty was in prime condition, and we have the pleasure of reporting that the courtesy and hospitality of the managers of this domain were liberally extended to the visitors of this fine park. The number of exotic trees growing here in the greatest luxuriance is an evidence of the mildness of this climate and a convincing testimony to the knowledge and skill of the Land Steward and gardener. The day spent in this pleasant locality will ever be marked as one of the red letter days in our botanical calendar.—James Irvine.

M. Jordan's New Work.—We beg to call the attention of our botanical readers to the advertisement on the cover, of M. Jordan's new work. According to the prospectus issued, the plants figured in this work will be:—First, New and critical species previously designated by M. Jordan in various other works, principally in his *Pugillus*, and in the first part of the *Diagnoses d' especes nouvelles ou meconnues.* Second .—Those which will appear in the succeeding part of the latter work, and also in the *Breviarum plantarum novarum.* And third :—Rare or critical species mentioned by various authors which are but little known and of which there are no figures extant.

From the specimen plates which M. Jordan has sent us we are quite satisfied that the work has been well executed, and they will be always valuable for comparison of critical or doubtful species. [Eds. Nat.]

Original Articles.

A FLORA OF HIGH WYCOMBE.

By James Britten.

(Continued from page 77.)

Antirrhinum. *Linn.* Snapdragon.

† *A. majus*, L. Bab. 241. Old walls at Bradenham; cabbage field near Wooburn Common.

A. Orontium, L. Bab. 241. A weed in the garden at the Hill Farm, Wycombe; cornfield near Marlow, with *Silene noctiflora*; "common

fields opposite Bisham Wood." *Phyt.* i. 991. *O.S.*, perhaps the same locality as the preceding?

LINARIA. *Mill.* Toadflax.

L. Cymbalaria, Mill. Ivy-leaved Toadflax. Bab. 241. Walls: West Wycombe; Crendon Lane, Wycombe; near the Marsh; and at Little Marlow.

L. Elatine, Mill. Bab. 242. Cornfields.

L. spuria, Mill. Bab. 242. Cornfields.

L. minor, Desf. Bab. 242. Cornfields: also in chalk pits, as at Wooburn Green and Missenden.

NOTE.—This species appears to have a peculiar predilection for railways, growing between the lines of rail, on the ground passed over by the train; it is abundant at Wycombe in this habitat, and was equally so, in 1862, near Barnetby, in Lincolnshire.

L. vulgaris, Mill. Bab. 243. Hedges and fields.

SCROPHULARIA. *Linn.* Figwort.

S. nodosa, L. Bab. 243. Woods and hedges.

S. aquatica, L. Bab. 243. By ditches and watery places.

MELAMPYRUM. *Linn.* Cow-wheat.

M. pratense, L. Bab. 244. Mr. Mill, in his Marlow list, remarks "It is curious that in so wooded a country, and in a neighbourhood so well suited to it in every respect, so common a plant does not appear to grow." —*Phyt.* i. 991. *O.S.* Mr. Melvill, however, informs me that he has a specimen collected by himself in the neighbourhood of Great Marlow; and it is also said to occur by roadsides about Beaconsfield, *MS.* It is very rare about Wycombe, but grows abundantly on Wooburn Common, and in the adjoining woods.

PEDICULARIS. *Linn.* Lousewort.

P. palustris, L. Bab. 245. Wet meadows about Marlow, on both sides of the river.

P. sylvatica, L. Bab. 245. Whittington Park; Wycombe Heath; etc.

RHINANTHUS. *Linn.* Yellow Rattle.

R. Crista-galli, L. Bab. 245. Meadows and pastures.

EUPHRASIA. *Linn.* Eyebright.

E. officinalis, L. Bab. 246. Dry heathy places.

E. Odontites, L. Bab. 247. Cornfields and roadsides.

VERONICA. *Linn.* Speedwell.

V. scutellata, L. Bab. 247. Wet places: Naphill common; at the foot of Cookham Down, Berks.

V. Anagallis, L. Bab. 247. By ditches: Wycombe Rye, etc.

V. Beccabunga, L. Brooklime. Bab. 247. In wet places.

V. Chamædrys, L. Cat's-eye. Bab. 248. Ditches.

NOTE.—I found a specimen in 1865, the leaves of which had stalks as long as those of *V. montana*.

V. montana, L. Bab. 248. Damp woods, frequent.

V. officinalis, L. Bab. 248. Banks and commons.

V. serpyllifolia, L. Bab. 249. Roadsides and fields.

V. arvensis, L. Bab. 249. Roadsides and waste places.

V. agrestis, L. Bab. 250. A common weed in gardens, etc.

† *V. Buxbaumii*, Ten. Bab. 250. Fields, common and very handsome.

V. hederifolia, L. Bab. 250. Fields, banks, and waste ground.

ORDER LVIII.—LABIATÆ.

MENTHA. *Linn.* Mint.

[*M. rotundifolia*, L. "Between High and West Wycombe. *Mr. J. Rayer.*" *Botanists' Guide*, i. 37. I have never been able to find it.]

M. sylvestris, L. Horse Mint. Bab. 253. In wet places.

‡ *M. viridis*, L. Spear Mint. "Rare." Bab. 253. By the little stream in Wycombe Rye.

M. aquatica, L. Bab. 254. Wet places, frequent.

M. arvensis, L. Bab. 255. Cornfields and waste ground.

M. Pulegium, L. Penny Royal. Bab. 255. By two or three of the ponds on Naphill Common, plentiful.

LYCOPUS. *Linn.* Gipsywort.

L. europæus. L. Bab. 255. Ditches and wet places.

SALVIA. *Linn.* Sage.

S. verbenaca, L. Bab. 255. On Cookham Green, Berks.

ORIGANUM. *Linn.* Marjoram.

O. vulgare, L. Bab. 256. Hedgebanks and borders of fields.

NOTE—Occasionally occurs with white flowers; and I last year observed a group of plants near Downley, the blossoms of which were nearly concealed by the enlarged calyces.

THYMUS. *Linn.* Thyme.

T. serpyllum, L. Bab. 256. In heathy places, common.

T. Chamædrys, Fr. Bab. 256. In heathy places and on banks, less common than the preceding.

CALAMINTHA. *Linn.* Calamint.

[*C. Nepeta*, Clairv. "On the bank of the first lane which turns off from the Little Marlow road on the left, beyond Little Marlow; also in

small quantity on the main road, immediately before the lane." *Phyt.* i. 991. *O.S.*]

C. officinalis, Clairv. Bab. 257. Not uncommon on hedgebanks, as in the back lane to the Marsh ; at Totteridge, etc.

Note—We have about Wycombe two widely differing forms of this species, one of which bears considerable resemblance to the true *C. Nepeta*. In this, the leaves and stems are hoary, and the blossoms pale lilac, spotted with purple ; it is also a taller and more robust plant than the more ordinary form of *C. officinalis*, in which the leaves are of a brighter green, and the blossoms pink, mottled with white and red. I suspect that the first mentioned form, which I may, for brevity's sake, term *C. pseudo-Nepeta*, was the plant observed by Mr. Mill, and recorded as *C. Nepeta*. The true *officinalis* is found in " various places along the Little Marlow Road, and on the dry banks by most of the lanes thereabouts," *Phyt.* i. 992. *O.S.*; as well as in the above-mentioned localities. *C. pseudo-Nepeta*, I have observed at Totteridge, West Wycombe, (in great abundance) Bledlow Ridge, etc.; it remains in blossom much longer than the true *officinalis*.

C. Acinos, Clairv. Bab. 257. Basil Thyme. In dry fields and by roadsides, common.

C. Clinopodium, Benth. Bab. 257. Roadsides, common.

Scutellaria. *Linn.* Skull-cap.

S. galericulata, L. Bab. 258. Banks of the Thames, common.

S. minor. L. Bab. 258. Damp places on Lane End Common.

Prunella. *Linn.* Self-heal.

P. vulgaris, L. Bab. 258. Meadows and roadsides, common.

Note.—Occasionally occurs with white or pinkish blossoms.

Nepeta. *Linn.*

N. Cataria, L. Cat-mint. Bab. 258. Hedges and roadsides, not uncommon : West Wycombe, Marlow, etc.

N. Glechoma, Benth. Ground Ivy. Bab. 258. Woods and hedgebanks.

Lamium. *Linn.* Dead-Nettle.

L. amplexicaule, L. Henbit. Bab. 259. Fields and gardens, common.

[*L. incisum*, Willd. I once found what I thought to be this species near Little Marlow, but it may have been only the form of *L. purpureum*, " with more deeply-cut leaves," mentioned in *Bab. Man.* 260.]

L, purpureum, L. Bab. 259. Waste ground, etc.

L. album, L. Bab. 260. Hedgebanks, etc.

L. Galeobdolon, Crantz. Bab. 260. Weasel-snout. Woods and banks, frequent.

Galeopsis. *Linn.* Hemp-Nettle.

G. Ladanum, L. Bab. 260. Cornfields, etc., common.

G. Tetrahit, L. Bab. 261. Woods, hedges, and roadsides, not very common : Booker, Bledlow Ridge, etc,

Note—I have found white-flowered varieties of each of these species.

STACHYS. *Linn.* Woundwort.

S. Betonica, Benth. Betony. Bab. 261. Woods, not unfrequent; Hughenden; Whittington Park, etc. Appears from Mr. Mill's list to be rare in the more immediate neighbourhood of Marlow.

S. sylvatica, L. Bab. 262. Hedges and woods.

S. palustris, L. Bab. 262. Damp places, frequent.

S. arvensis, L. Bab. 262. Cornfields; near Wooburn Green; near the Union House, Saunderton; by the footpath to Hughenden Park; Lane End, etc.

BALLOTA. *Linn.* Horehound.

B. fœtida, Lam. Bab. 262. Hedgebanks and roadsides.

MARRUBIUM. *Linn.* White Horehound.

M. vulgare, L. "Rare." Bab. 263. Occurred in 1862, as a weed, in a garden at Bradenham; plentiful on Bradenham Green, 1866; "found, I think, by the high road near Loudwater." *MS.*

TEUCRIUM. *Linn.*

T. scorodonia, L. Wood Germander. Bab. 263. Abundant on and about Wooburn Common. Apparently rare in the district.

AJUGA. *Linn.* Bugle.

A. reptans, L. Bab. 263. Woods, meadows, and roadsides, in damp places.

NOTE—The white flowered variety has been gathered on Green Street.

ORDER LIX.—VERBENACEÆ.

VERBENA *Linn.* Vervain.

V. officinalis, L. Bab. 264, Roadsides and waste ground, frequent.

ORDER LX.—LENTIBULARIACEÆ.

UTRICULARIA. *Linn.* Bladderwort.

U. vulgaris, L. Bab. 265. "In the ditch which bounds the meadow immediately above the suspension bridge (at Marlow): pond at the foot of Cookham Down (Berks), nearest Cookham." *Phyt. i.* 992. *O.S.* Also in the ditch and pond nearest the farm-house at the foot of Cookham Down.

ORDER LXI.—PRIMULACEÆ.

PRIMULA. *Linn.*

P. vulgaris, L. Primrose. Bab. 267. Woods and banks, common.

β. caulescens, False Oxlip. In meadows, not unfrequent; Hazelmoor, Downley, Hughenden, etc.; also occasionally in woods and lanes, as in Winch Bottom Wood and Hollow Lane.

P. veris, L. Cowslip. Bab. 267. Meadows and banks.

NOTE.—This is one of our most variable species, as any one who will take the trouble to examine narrowly several specimens will readily admit. The scape is often very short, and is occasionally entirely absent, the flowers appearing primrose-fashion, among the leaves; two scapes on the same plant frequently anastomose, and a monstrous head of flowers is the result. The individual blossoms also vary very much in many respects. I have found a specimen with two corollas enclosed in a single calyx: and another in which one corolla contained ten stamens and two pistils.

HOTTONIA. *Linn.* Water Violet.

H. palustris, L. Bab. 268. Ditches about Little Marlow; "in the ditches by the river above the Suspension bridge," Marlow. *Phyt.* i. 992. *O.S.* Ponds at the foot of Cookham Down, Berks.

LYSIMACHIA. *Linn.* Loosestrife.

L. vulgaris, L. Bab. 268. Abundant by the Thames in several places, and by the adjoining ditches; "on the bank of the stream in the back lane, above Overshot Mill, Loudwater, on the field side." *MS.*

NOTE—This very handsome species is cultivated in London gardens under the name of "Orange Bovena." I once found a variety, smaller than the ordinary form, having a deep orange spot at the base of each segment of the corolla.

L. Nummularia, L. Moneywort. Bab. 269. Damp banks and meadows, somewhat frequent. Near Marlow, etc.

NOTE—This is a favourite plant of Londoners, who call it "Creeping Jenny."

L. nemorum, L. Bab. 269. Yellow Pimpernel. Damp places in woods, and occasionally on banks.

ANAGALLIS. *Linn.* Pimpernel.

A. arvensis, L. Bab. 269. Shepherd's Weather Glass. Cornfields, common.

β A. cærulea, Sm. Bab. 269. Blue Pimpernel. Cornfields above West Wycombe Park, and opposite Bradenham; near Prestwood, *Mr. F. Wheeler.*

NOTE—Professor Babington considers this "probably distinct"; and in this opinion I coincide. It appears year by year in the cornfields on the hill opposite Bradenham.

A. tenella, L. Bog Pimpernel. Bab. 269. "In a marsh at Lane End." *Mr. J. C. Melvill*, in *Naturalist* i. 155.

ORDER LXIII.—PLANTAGINACEÆ.

PLANTAGO. *Linn.* Plantain.

P. Coronopus, L. Bab. 272. Fern-field, Well End.

P. lanceolata, L. Ribwort, Bab. 273. Meadows, fields, and roadsides.

NOTE.—A variety having from six to eight smaller spikes at the base of each ordinary spike, occurred near West Wycombe, in 1865, and has since been observed in several other localities.

P. Media, L. Bab. 273. Pastures and roadsides.

P. major, L. Waybread. Bab 273. Roadsides and waste places.

NOTE.—A plant, having the floral spikes interspersed with leaves, was observed by the roadside near Marlow in 1864.

LITTORELLA *Linn.* Shoreweed.

L. lacustris, L. Bab. 274. By ponds on Naphill Common, abundant; and by a pond by the roadside near Kingshill.

DIVISION IV.—MONOCHLAMYDEÆ.

ORDER LXV.—CHENOPODIACEÆ.

CHENOPODIUM. *Linn.* Goosefoot.

C. album, L. Bab. 277. Waste ground and fields.

C. ficifolium, Sm. Bab 277. Waste ground in some places more frequent than *C. album*; Wycombe; also on rubbish-heaps near the Loudwater and Marlow Road Stations.

C. rubrum, L. Bab. 277. Waste ground near Bourne End; frequent about Downley.

C. Bonus-Henricus, L. Bab. 278. Waste ground by Marlow Manor-house, *Mr. J. C. Melvill.*

ATRIPLEX. *Linn.*

A angustifolia, Sm. Bab. 279. Waste ground and cornfields; abundant about the Wycombe railway station; cornfield at Marlow, *Mr. J. C. Melvill.*

[*A. erecta*, Huds., doubtless also occurs, but I do not remember to have specially noticed it.]

A. deltoïdea, Bab. Bab. 279. Cornfield at Marlow, *Mr. J. C. Melvill.*

A. hastata, L. Bab. 280. Fields and waste ground, Wycombe, etc.

ORDER LXVI.—POLYGONACEÆ.

RUMEX. *Linn.* Dock.

R. conglomeratus, L. Bab. 282. Damp places, frequent; Wycombe Rye, etc.

[The form *R. viridis*, Sibth. of *R. sanguineus*, L., probably occurs ; but I have not certainly distinguished it.]

R. obtusifolius, L. Bab 282. Fields and waste ground ; the commonest places.

a R. crispus, L. Bab. 283. Roadsides and fields, frequent.

R. Hydrolapathum, Huds. Bab. 283. Abundant by the Thames ; I have not seen it nearer Wycombe.

R. acetosa, L. Sorrel. Bab. 283. Meadows, common.

R. acetosella, L. Sheep's Sorrel. Bab. 283, Wooburn common ; Fernfield, Well End ; Lane End ; etc.

POLYGONUM. *Linn.*

P. Bistorta. L. Snakeweed. Bab. 284. Abundant in the meadows by the Wick, both in Newland, and towards the Marsh ; also in a meadow by Mr. Wingrove's farm, Hazelmoor.

P. amphibium, L. Bab. 285. Damp places and in water. The variety growing upon land is plentiful by the Wick ; that with floating leaves is abundant in the Thames, and in water in West Wycombe Park.

P. lapathifolium, L. Bab. 284. In damp fields and waste ground.

P. nodosum, Pers. Bab. 285. Damp fields near Lane End, etc.

P. Persicaria, L. Bab. 285. Waste ground ; a common weed in gardens.

P. mite, Schrank. Bab. 285 Damp places on commons ; Wooburn Common ; Lane End Common, etc.

P. Hydropiper, L. Bab. 286. Wet places, frequent ; Wycombe Rye, etc.

P. aviculare, L. Knot-grass. Bab. 287. Cornfields, roadsides, and waste ground.

P. Convolvulus, L. Bab. 287. Hedges and cornfields.

ORDER LXVIII.—THYMELACE.

DAPHNE. *Linn.*

D. Mezereum, L. Mezereon. "Rare." Bab. 288. Matching's Wood, above Noble's Farm, 1865 ; Dane Garden Wood, and Fennell's Wood, Loudwater, 1866.

NOTE.—This rare plant was first recorded as a native of the district by Professor Martyn, who, when incumbent of Little Marlow in 1777, wrote to Dr. Pulteney that "*Daphne Mezereum*, grows commonly in our woods." *See Phyt*, vi. 268. *N.S.* As this statement did not obtain subsequent verification, many supposed that *D. Laureola* had been intended until, in 1862, Miss Chandler obtained from a cottager in the neighbourhood the information that the plant was still to be found. Enquiry in different localities led to the discovery that *D. Mezereum* was, or at any rate had been a common

wild plant of our district ; diligent searching led to the finding of specimens in the above-mentioned woods at the dates there given, but in each place in but small quantity. In addition to these the Mezereon is stated on good authority to have been found in the following places in the district :—Bradenham Woods ; Naphill Common ; Cork's Hall Woods (in plenty) ; Kingshill Woods ; Wood near Amersham ; and many more ; and a small tree was brought this year (1866) from the small wood at the foot of the ascent of White Hill towards Beaconsfield. Unfortunately, the Mezereon is so well known to the villagers round, that as soon as a plant is seen in the woods, it is removed to the cottage garden ; besides which, the gamkeepers, and others who are frequently engaged in woodland occupation, take every specimen they can find, knowing that they can readily dispose of it to gardeners and others. A word as to the nativity of the species ; it has been suggested that the Mezereon trees found in the woods are the results of bird-sown seeds ; but a person, who has many fine specimens in her garden, assures me that she never planted them, but that the birds brought the seeds from the woods. The only locality for the plant to which I can attach the slighest suspicion, is that of the plantation below Hughenden House, which has consequently been omitted from the above list of localities ; here it may have been planted, but this objection cannot be urged in reference to its other haunts. *D. Mezereum* is probably distributed over a large extent of the county as I have a note of its occurrence in Mr. Grover's Wood, at Smalldean, near Wendover.

D. Laureola, L. Wood Laurel. Bab. 287. Woods, frequent, but usually in small quantity ; Fennell's Wood ; Dane Garden Wood ; Oakridge Wood ; Tinker's Wood ; etc. ; also in Hollow Lane.

[Order LXIX.—SANTALACEÆ.

Thesium. *Linn.*

T. humifusum, DC. Bab. 288. "Chalk banks, near Marlow," *Mr. Gotobed. B. G.* i. 35. I have never seen it there ; nor does Mr. Mill mention it in his Marlow list.]

Order LXXII.—EUPHORBIACEÆ.

Buxus. *Linn.* Box.

B. sempervirens, L. "Rare." Bab. 290. In woods, perhaps not truly wild, though apparently so in Dane Garden Wood, and other places.

Euphorbia. *Linn.* Spurge.

E. Helioscopia, L. Sun Spurge, Bab. 290. Waste ground ; a common garden weed.

E. amygdaloïdes, L. Bab. 291. Woods and hedges, common.

E. Peplus, L. Bab. 292. A garden weed.

E. exigua, L. Bab. 292. Cornfields and waste ground.

E. Lathyris, L. Caper Spurge. Bab. 292. Waste ground at Downley and Flackwell Heath, *Mr. T. P. Lucas !* a weed in a garden at Wycombe.

MERCURIALIS. *Linn.*

M. perennis, L. Dog Mercury. Bab. 293. Woods and shady banks.

ORDER LXXIII.—CERATOPHYLLACEÆ.

CERATOPHYLLUM. *Linn.* Hornwort.

C. demersum, L. Bab. 293. Ponds on Naphill Common ; and at the foot of Cookham Down, Berks.

ORDER LXXIV.—CALLITRICHACEÆ.

CALLITRICHE. *Linn.* Water Starwort.

C. verna, L. Bab. 294. Ponds, ditches, and streams.

ORDER LXXV.—URTICACEÆ.

PARIETARIA. *Linn.*

P. diffusa, Koch. Wall Pellitory. Bab. 295. Old walls ; abundant at Little Marlow, nearly opposite the church.

URTICA. *Linn.* Nettle.

U. urens, L. Bab. 295. Waste ground, and at the foot of walls, common.

U. dioica, L. Bab. 295. Woods and roadsides.

HUMULUS. *Linn.* Hop.

H. Lupulus, L. Bab 295. Hedges, frequent.

ORDER LXXVI.—ULMACEÆ.

ULMUS. *Linn.* Elm.

U. suberosa, Ehrh. Bab. 296. Woods and hedges.

ORDER LXXVII.—AMENTIFERÆ.

SALIX. *Linn.* Willow.

[I have not yet been able to determine which of the many species of this difficult genus occur with us ; but hope that a list of them may be published after the investigation of another season.]

POPULUS. *Linn.* Poplar.

P. alba, L. White Poplar. Bab. 307. In Wycombe Park, and occasionally in woods, but doubtfully wild.

P. tremula, L. Aspen. Bab. 307. In woods, not unfrequent ; Whittington Park.

P. nigra, L. Black Poplar. Bab. 307. Banks of the Thames ; Whittington Park.

BETULA. *Linn.* Birch.

B. alba, L. White Birch. Bab. 308. Whittington Park.

B. glutinosa, Fries. Bab. 308. Hedges; also on Naphill Common, etc.

ALNUS. *Tourn.* Alder.

A. glutinosa, Gaert. Bab. 308. Whittington Park; by the Thames, etc.

FAGUS. *Linn.* Beech.

F. sylvatica, L. Bab. 309. Woods and hedges, the commonest of our trees.

NOTE.—The Beech contributes largely to the support of the staple manufacture of the district, being much used in chair-making, etc.

CASTANEA. *Tourn.* Chestnut.

† *C. vulgaris*, Lam. Bab. 309. Wycombe and West Wycombe Parks.

QUERCUS. *Linn.* Oak.

Q. Robur, L. *a Q. pedunculata*, Ehrh. Bab. 309. Hedges and woods.

CORYLUS. *Linn.* Hazel Nut.

C. Avellana, L. Bab. 309. Hedges and woods.

CARPINUS. *Linn.* Hornbeam.

C. Betulus, L. Bab. 309. Hedges, not very common.

DIVISION V. GYMNOSPERMÆ.

ORDER LXXVIII.—CONIFERÆ.

TAXUS. *Linn.* Yew.

T. baccata, L. Bab. 311. Woods and hill sides.

NOTE.—As Yew trees of considerable size are to be found in most of our woods, I fancy the species may be truly native to the district: Dane Garden and Fennel's Woods may be specially mentioned. There are also very fine old Yew Trees on West Wycombe (Haveringdon) Hill, where, however, they were originally planted: and similar ones may be seen at intervals along the road from West Wycombe to Bledlow Ridge.

JUNIPERUS. *Linn.* Juniper.

J. communis, L. Bab. 311. Common on dry chalky ground; Keep Hill; Hughenden; Marlow Common; etc. Especially fine upon Naphill Common, giving to that locality an almost park-like appearance.

PINUS. *Linn.* Scotch Fir.

‡ *P. sylvestris*, L. Bab. 311. Whittington Park, and other woods; but not truly wild.

(To be continued.)

M. A. DESEGLISE'S REVISION OF THE SECTION *TOMENTOSÆ* OF THE GENUS *ROSA*.

By Chas. P. Hobkirk.

Our English botanists will hail with pleasure the appearance of this long-promised work of M. Déséglise on the above section of *Rosa*. The confusion which has long existed with regard to the *Rosa tomentosa* of Smith, is now in a fair way of being removed, if it be not altogether cleared up.

It is not my intention however to write a Critique upon this review but rather to present to the readers of the *Naturalist* some of the most salient points in it, more particularly as regards our English forms, and thus to enable those who are not in possession of the original, to compare the forms that come under their notice, with the diagnoses of the French forms.

M. Déséglise opens his review with a quotation from M. Jordan, to which I can give my most hearty concurrence :—

"If, in a series of species forming a natural group, we compare the first of the series with the last, we shall doubtless find that they may be very easily distinguished, whilst if we compare the first with the second, we shall often be more struck with the resemblances than with the differences which exist between them. We ought not however, on this account to unite them ; for if we adopt this plan, we must also unite that which immediately follows, to the second, and so on to the last in the series ; and yet this re-union of the species of a group, into one single species, vicious as it may seem is nevertheless a logical sequence." †

Again, M. Déséglise writes, (p.6) :—"If the modern school be open to reproach for being too ready in establishing species, often on a single difference, the same reproach may be applied with equal force to the *reducers*, who deny such differences without examination ! We must obtain a correct idea of the actual state of things, and work with perseverence and method, for the purpose of obtaining a knowledge of but a part of the objects which lie at our very doors. Is not nature a better guide than Man ? We may have different opinions upon *species*, but that should not prevent us from studying to the bottom all the forms which nature presents to us ; they must be analysed, characterised, classed, waiting until science shall decide the rank that these forms should occupy in our classification."

† Jordan, Obs. fragm. 6. p. 31.

At page 19 and sequel we have a review of the different descriptions, &c., given by English and Continental botanists of *Rosa tomentosa*, Sm. which as being of great value, and being the result of much research, I have transcribed in full, and also because I am of opinion that such a review ought to be chronicled amongst our English botanists and not left altogether in the hands of our French brethren.

M, Déséglise writes :—" Mr. J. G. Baker in his letter (to the author,) 6th February, 1865, gives me the following information :—' The herbarium of Smith includes under the name of *R. tomentosa* seven specimens :—

1st.—"Ehrhart, arb. 45 ; *R. villosa*, L. ; Hanover (printed ticket) herb. Davall, 1802."

"Petioles covered with a soft down, glands numerous ; terminal leaflet typically oval, grey, hairy on its upper surface ; bracts hairy on the back, and strongly glandulose all over ; tube of the calyx straitly oval. I cannot see the under surface of the leaves."

2nd.—" Switzerland, Schleicher."

"Leaves less villose above than in No. 1, villose and very glandulose beneath on the whole surface ; petioles coarsely glandular ; the bracts are less villose on the back, and the leaves less villose above than No. 1 ; calyx the same."

3rd.—" County of Nottingham, rather common. G. Jellow, 1824."

" Petioles very glandulose and covered with numerous prickles ; calyx-tube broader and shorter. This is, I think, your *Rosa cuspidata*, and resembles the plant given under the name of *tomentosa*. in Woods' Collection."

4th.—"Saint Fanks (Norwich) 1779."

5th.—"Arninghall Wood, 25th June, 1801."

"Resemble No. 2."

6th.—" County of Cambridge. Rev. — Holme, 1801."

"Leaves villose above, strongly glandulose and somewhat villose beneath ; bracts very glandulose on the back and the prickles curved ; calyx-tube oval. This specimen is altogether different from the others, and is allied either to *Jundzilliana* or a neighbouring form."

7th.—" Anglesea, 1802. Rev. H. Davies."

"Either your *tomentosa* or very near it ! A few strong glands on the petiole and the under surface of the leaf ; ripe fruit ovoid, and the calyx divisions are still persistent on one of the specimens."

" I may then say that the seven specimens represent five different forms ; 2, 4, and 5 being the most common in England and in English herbaria ; none of them being exactly either your *tomentosa* or your *cuspidata*, but something intermediate between them."—(J. G. Baker, letter, 6th Feb., 1865.)

The seven specimens of Smith's Herbarium, are far from throwing light on the specific question on which we are engaged.

Smith has taken for his type the rarest form, without troubling himself about the other species which might he hidden under the name of *R. villosa*, L. ; I am led to form this opinion from having received from Mr.

Baker in 1865, *R. tomentosa*, from Westmoreland, such as it is known amongst the greater proportion of authors. Nos. 2, 4, and 5, are, according to Mr. Baker, the most common forms in England, but it does not follow from that, that these forms ought to be united under Smith's species, rather than under any other; for the English specimens which I have received, under the name of *R. tomentosa*, are literally charged with glands on the under surface of the leaves, and certainly Smith could not fail to have noticed this character in the diagnosis of his species, if his typical plant had been provided with them. No. 6, does not belong to this section but to the Rubiginosæ. The specimen No. 1, being pasted down, it cannot be determined whether the leaves are glandolose beneath or not. No. 7 cannot be referred to what authors describe under the name of *R. tomentosa.* The types in Smith's Herbarium being thus covered with uncertainty, the wisest plan will be to analyse the texts; and this is the method we shall pursue in endeavouring to clear away the confusion which exists under the name of *R. tomentosa.*

Smith, Flora britannica (1800) Vol. ii. page 539, says, "*Foliola elliptica-ovata, utrinque mollissime tomentosa,*" and again in the Compendium floræ brittannicæ. (1816) page 78. No. 9, "*Fructibus ovatis pedunculisque hispidis, aculeis caulinis aduncis, foliolis ovatis utrinque tomentosis.*" (All or nearly all the Floras of France and Germany, give Smith's plant as without glands on the under surface of the leaf). Smith in separating his *R. tomentosa* says, "*Præcedente (R. villosa*, L. which also has leaves without glands,) *omnibus partibus minor est, et habitu cum R. canina convenit, nisi quod folia undique pubescunt, et subcinerea videntur.*"

De Candolle, Flore franç. vol. iii. page 440, (1805) says, "*Leaves covered with soft hairs, numerous and appressed,*" and cites the synonym of Bauhin, Hist. pl. vol ii. p. 44. f. 2 (?) Certainly the doubt may be admitted since the enlarged figure of Bauhin represents a plant having peduncles, calyx-tube and calyx divisions glabrous.

Gmelin, Fl. Badensis-Alsatica, (1806) vol, iv. p. 368, says, "*Foliola septem, quinque, subsessilia, ovalia, argute duplicato-serrata, utrinque pallide viridia tomentoso-sericea,*" citing the figure of Sowerby Engl. Bot. t. 990, (t. 467, 3d Ed.) This figure is very bad, inasmuch as it only shews the upper part of a flowering branch, and all the leaves with the upper surface only, besides that they are simply dentate, whilst they ought to be doubly dentate.

Persoon, Synop. pl. (1807), vol. ii. p. 50, No. 29, simply copies the diagnosis of the Flora britannica.

Lejeune, Fl. de Spa (1811), vol. i. p. 230, No. 7, "*leaves cottony on both surfaces.*"

Merat, Flore des environs de Paris, (1812), p. 190; Bastard Flore de Maine et Loire (1809-12), say :..."*Leaves tomentose.*"

Woods British Species of Rosa (1816, p. 197, No, 12) says of his *R. tomentosa*, "*Foliola.....utrinque tomentosa, duplicato-serrata, subtus nunc totæ superficie nunc margine, venisve tantum glandulosa.*" Woods must certainly have had several different forms before him in describing his type; to see this we have only to consult the herbarium prepared by him in establishing the authenticity of the species described in his Monograph which is in the Linnean Society's herbarium at London. The type of his species is represented in this collection by the Nos. 38 and 39: No. 38 ! is *R. cuspidata*, Bieb., according to the notes which Mr. Baker had the kindness to make for me on Woods' Monograph. Whenever a description includes several doubtful forms of which the limits are unknown, the result must be that the most general characters are substitued in part for genuine specific characters, which would not be the case were the description based upon a single well determined form. The synonyms cited by Woods must certainly be accused of confusion; indeed it is impossible on such a subject that they could be otherwise. Thus the synonyms of Smith, fl. Brit., Engl. Bot. Dc. Fl. fr., are far from corresponding with his description. It seems to us that when an author cites a synonym he ought to have a specimen of it before him, or at any rate to take the trouble to consult the texts. By this means we should avoid the gross errors in synonymy which cause certain authors to attach a specific name rather than examine a description. Woods ranks under his type fourteen varieties, which are represented by 19 numbers in his herbarium. Nos. 44, 48, 51, and 58 are *R. tomentosa*, Baker (non Smith); No. 40, *R. scabriuscula*, Sm.; No. 41, *R. subcristata*, Baker (of the sect. *caninæ*); No. 42, *R. Sherrardi*, Davies; Nos. 49 and 50, *R. Jundzilliana*, Baker (non Besser) of the sect. *Rubiginosæ*; No. 59, *R. canescens*, Baker, of the sect. *Caninæ*.

(To be continued.)

A BOTANICAL VISIT TO DELAMERE FOREST.

On Delamere Forest there are two Lakes, (or what are called Meres in Cheshire,) of considerable size, these I visited last July, for the purpose of seeing their botanical productions. Oakmere was my principal destination, but on the route I had to pass Lechmere, which I think must be derived from the word Leech, as I was informed a few years ago, a great quantity of Leeches were captured from the Lake, for surgical purposes. On the margin of the Mere, I saw sparingly *Alisma ranunculoides*, *β. repens*, *Sparganium minimum*, and *Scutellaria minor*, in a bog at a little distance was growing *Carex filiformis*, *Myosotis cæspitosa*, *Hypericum elodes*, *Utricularia minor*, *Drosera intermedia*, *D. rotundifolia*, *Scirpus fluitans*, *Ranunculus Lingua*, *Radiola millegrana*, *Lysimachia vulgaris*, *Andromeda polifolia*, *Menyanthes trifoliata*, *Comarum palustre*, *Eriophorum angustifolium*, and *Anagallis tenella;* in the Mere I observed the two Water Lilies, *Nuphar lutea*, *Nymphœa alba*, *Myriophyllum alterniflorum*, and *Potamogeton heterophyllus*. After spending an hour very agreeably at Lechmere, I proceeded to Oakmere, a distance of nearly three miles from the former, having to pass on my way the celebrated Abbey Arms, or Vale Royal Hotel which is stated in White's History of Cheshire, to have been a Monastery, founded in the reign of Edward I., and dissolved at the Reformation in the reign of Henry VIII. ; it has still a venerable appearance, and attracts much attention as a relic of the past. Not far from the old Abbey, we come to Oakmere, which is well known to botanists, from its name being associated with the rare *Calamagrostis stricta*, this being its only habitat in England if not in Britain ; it does not appear to be very plentiful, and is confined to a few yards of boggy ground ; all the land under cultivation hereabouts a few years ago was covered either with bogs or Woods, and it is to be feared the heath, which glories in being the locality for this rare grass will soon share the same fate. I did not notice many rarities at Oakmere, but amongst the rest were collected *Teesdalia nudicaulis*, *Littorella lacustris*, *Populus alba*, and *Pogonatum alpinum*. *Utriculuria minor* and *Lycopodium inundatum*, have been found on the borders of the Mere but I did not succeed in my search for them.—R.

THE FOOD OF BIRDS.

By Rev. F. O. Morris.

(*Continued from vol.* 2.)

Then the Cuckoo, guided by instinct, lays her egg, almost always in the nest of a more especially insectivorous bird; and these, when providing for the wants of their suppositious fondlings, eschew the seed they would themselves at other times partake of. Even a Canary, whose food supplies a not unimportant place in the traffic of the country, fed a young cuckoo with caterpillars placed in her cage for the purpose, instead of the seed which derives its very name from herself.

So much for the exceptions; now *ad rem.*

I allow, I say, that beyond the admitted amount of injury that birds do to our crops and garden fruits, they would do us similar harm all the year round if they had the opportunity, except for their young, during the breeding season. I need go no farther than my own door for proof of this.

When I look out of my dining room window on coming down to breakfast in the morning, in the winter, I see a redbreast whose owner and wearer is waiting for me in the privet bush which stands about three yards off. In hard weather I have some crumbs ready saved from the night before for him and other birds of different kinds, which he and they share; but, otherwise I let them wait till after breakfast. As soon as I open the the door and call him by name he is down within a foot or two of me, and seems to take as a right the "dole of bread" which I have ready for him.

But, why does he do so? The very flower-bush from which he has just flown, is thickly covered with glossy black-berries, on which bullfinches and other sorts of birds are only too glad to feed, when "over the Wold the wind blows cold," and "Gaffer Winter" has thrown his white mantle over all about us. Why does he not eat these berries? For the best of all possible reason—because he prefers good wheaten bread when he can get it. So would every species of bird, every finch, and bunting in this country, if they had the chance.

But they have not the chance. For nearly eleven months in the year, they are obliged to forage in some other way, whatever their natural choice

might otherwise have been, and while they have young. The imperative dictates of nature makes them, as I have said, resort to other food for the supply of the insatiable cravings of their hungry broods.

Now, a few words on the food of the woodpigeon, another much maligned species, and I would first of all allow that when a gentleman who gives his name and address, writes in the *Times* and states a matter of fact, which has come under his own observation, one is bound to give full credence to what he says. I therefore have no doubt, but that the statement by Mr. A. Rawson of Bromley in the *Times* as to his having on one occasion, namely on the 17th of April 1841, found eighty-seven beans in the crop of a woodpigeon, may be accepted as correct; but the further inference from it, that inasmuch as this was in the evening, if the same number be allowed for its morning meal the number it would take in a day would be 174, or a pair of birds, 348, and this if they carried on their depredations for a fortnight they would consume in that time 4,882. So that, as the farmers must expect a proportionate consumption of beans according to the number of birds in a flock, that therefore the race of woodpigeons must be exterminated, I do most utterly regret. Why, Sir, at this rate, knowing, as many of your readers do, as well as yourself, the vast numbers of these birds that there are in many parts of the country, there would not be a bean left in the land, by this time, and if the birds lived on nothing else for a season, as is suggested, they themselves would have died of starvation, so that the evil would have cured itself long ago.

But, what is the fact of the case? I need not tell your country readers that beans are for the most part sown in the autumn; some in the spring. Now they are not ripe till after the ordinary wheat harvest, say in September, October, or November, or even later according to the season. Those too, which are sown in the spring, are sown, or ought to be sown, by February, or March; I must therefore ask the correspondent of the *Times* if he has any knowledge or notion where, and when, and how, the individual bird in question obtained the beans which he found within it. Your readers will know of themselves, without my telling them, that pigeons belong to the family of the Columbidæ, and not to the Rasores or Scratchers. No one ever saw a pigeon scratching like a cock. It is clear therefore that the beans in question must have been obtained in some exceptional manner, or if we suppose the bean crop to have been sown, and that too in the south of England, even so late as the 17th of April, or about that date—

I will not say the 1st ! —the poor bird picked up the grains which it found lying on the surface, useless to any one, probably after broadcast sowing, for if drilled or dibbled it would have been safe from any such depredation, so to call it, even if pigeons were able to commit it, which they are not; and in the other case the depredation would have been no depredation at all.

I do hope you will allow me a place for this plea for the Dove, of all birds, the emblem of innocence ; the type of conjugal affection and constancy; the symbol of peace from the very age of the ark; the representative to the whole Christian world of the Holy Spirit ; the bird whose " gentle cooing in our woods in the spring and early summer is the very most pleasing and soothing of the Thousand and One delightful sounds that Nature affords to those who can appreciate and value them."

P.S. I never have denied that birds do damage in fields and gardens— I further allow, and always have allowed, that when in consequence of this, or from any other cause, any kinds of birds consume to an undue extent, they should be kept down, and if only fair means be used and the birds be shot and not destroyed wholesale with poisoned grain, I have no fear for the annihilation of the race of woodpigeons ; they are far too wary birds for this ; and this, by the way, makes it comparatively easy to frighten them off from the fields when they are doing injury. Let them be fairly kept within due bounds, but as to anything beyond this, I can more than match all that Mr. Skirving has said as to their extraordinary numbers in Scotland, and the consequent mischief they may occasionally have done, by facts which are as curious and interesting as they are undoubted. Mr. Skirving refers to an extract from my " History of British Birds."— May I ask attention to the following facts in the accounts of two birds only. The Red-winged Starling and the Sparrow.—True, the former is only a rare British bird, but the habits of our own common Starling are precisely similar in every respect, and the statements as to the former made on such high authority shew what inconceivable numbers of insects must be destroyed by this. If the *Times* correspondent, Mr. Skirving, had referred to the work of his countryman Macgillivray on " British Birds," the best work ever published on the subject, he would I believe, have seen it there stated, for I have not the book at present by me, that the vast flights of Woodpigeons which are seen in the winter in Scotland, are not denizens of this country, but have come over from the North of Europe, to which they return in the Spring.

As to the damage that they do, I further wrote of a kindred species; showing that I have not omitted the case in what I have published on the subject, quoting from Wilson and Buonaparte, where they give in their "American Ornithology" the following calculation of the good effected by these birds in return for whatever grain they may consume :—"Their general food at this season, as well as during the early part of summer, consists of caterpillars and various other larvæ, the silent but deadly enemies of all vegetation and whose secret and insidious attacks are more to be dreaded by the husbandman than the combined forces of the whole feathered tribe together. For these vermin the Starlings search with great diligence, in the ground at the roots of plants, in orchards and meadows, as well as among buds, leaves, and blossoms: and from their known voracity, the multitudes of those insects which they destroy must be immense. Let me illustrate this by a short computation, if we suppose each bird, on an average, to devour fifty of these larvæ in a day, (a very moderate allowance,) a single pair, in four months, the usual time such food is sought after, will consume upwards of twelve thousand. It is believed that not less than a million pair of these birds are distributed over the whole extent of the United States in summer, whose food being nearly the same, would swell the amount of vermin destroyed to twelve thousand millions. But the number of young birds may be fairly estimated at double that of their parents, and as these are constantly fed on larvæ for at least three weeks, making a grand total of sixteen thousand two hundred millions of various insects destroyed in the space of four months by this single species! The combined ravages of such a hideous host of vermin would be sufficient to spread famine and desolation over a wide extent of the richest and best cultivated country on earth."

I have trespassed at too great length with only one species on your columns; I must leave the Sparrow for the present, though I had much to say even for him.

Reports of Societies.

NORWICH NATURALISTS' SOCIETY.

Reports of Meetings.

October 22nd, 1866. Mr. J. J. Rice, president in the chair. New Member, Mr. William Reynolds of Norwich. Mr. T. E. Gunn, hon. sec., exhibited a pair of those singular birds the Pallas Sand Grouse killed near Yarmouth, in June 1863 ; he also read, for the second time (at the request of the meeting) his paper on the remarkable visitation of the species in all parts of the British Isles during that year; with additional notes on their food, habits, distinction of sexes, description of plumage, &c.

Nov. 5th. The president in the chair. Mr. T. E. Gunn exhibited the white variety of the Skylark recently shot in Norfolk, (see *Naturalist* vol. iii. page 109.)

The president exhibited a box of aquatic insects.

Mr. J. Perry exhibited a box of Lepidoptera.

Dec. 3rd, 1866.—The president in the chair. The chairman contributed an excellent paper on the "Contrast of city and country life, or the uses and abuses of nature." The subject proved highly interesting and led to a discussion amongst the members relating to the several reasons why the study of nature is conducive to the health, amusement, and instruction of the student.

Mr. T. Gunn, hon. sec., exhibited several rare species of birds recently captured in various parts of Norfolk, including examples of the Shore-lark, Waxwing, Chatterer, Little Auk, and a cream-coloured variety of the common Partridge.

Boxes of recent Entomological captures were exhibited by Messrs. Rice, Brooks, and Bacon. At the conclusion of the meeting a vote of thanks was passed to the chairman and exhibitors.

Observations.

Waxwings in Norfolk and Suffolk.—This beautiful species arrived in large numbers in these counties during the middle part of November last. As usual with the arrival of birds of passage, a large number soon fell victims to the gun. I have examined myself nearly *forty* specimens that have passed into my hands for preservation, and seen and heard of as many more up to the present date. I hope to be enabled to give the readers of the *Naturalist* full particulars in the next number, of those occurring in Norfolk. The information of the Suffolk specimens I shall defer for a short time as I intend to give a list of the occurrence of the rare birds in that county that have passed under my own observation during the last few years.—T. E. Gunn, 3, West Pottergate, Norwich, December 13th, 1866.

The Black Redstart.—Phœnicura Tithys seen at Wakefield.—A friend of mine Mr. John Firth, saw this rare bird on the 12th of November in the sheep pens at Wakefield, he observed it perched on the sheep-bars. Will the Wakefield Naturalists say if they have observed it.—Fred. Waite, Clayton West, Huddersfield.

A specimen of the Peacock Butterfly, was caught in Stoneham Park, Hampshire, on Monday, December 17th, 1866.—*Manchester Examiner and Times.*

Original Articles.

ON THE ORIGIN OF THE DOMESTIC CAT, *FELIS CATUS, var. DOMESTICUS.*

By Thomas Graham Ponton.

Many attempts have been recently made to trace out the origin of the several varieties of the domestic dog, but none, as far as I am aware, to discover the stock from which the varieties of the domestic cat have sprung.

The domestic cat, although not presenting so many and well-marked distinctions of form and colour as the dog, yet presents several decided varieties. Most of these consist of differences in the colour and markings of the skin, but there is also in some cases a decided difference in size, of which I shall presently speak.

Two theories have at various times been propounded by naturalists as to the origin of the domestic cat. Some, as the author of "The Menageries," consider the wild cat of Britain and Europe, *Felis Catus*, Linn, to be the progenitor of our domestic animal. Others, as M. Rüppell, M. Temminck, and Sir William Jardine, on the other hand, maintain that its true original is the Egyptian Cat, *Felis maniculata*. Professor Bell, in his work on British quadrupeds, differs from all of these several theorists, and argues on various grounds that it is highly improbable that either of the above-mentioned animals can be the progenitor of our domestic cat, and thinks that the stock from which it sprung is still undiscovered.

To facilitate the further elucidation of the subject, I shall here briefly describe the two wild animals mentioned.

Felis Catus, Linn.—Head triangular, strongly marked; ears rather long, triangular, pointed; body robust, markedly more so than in the domestic cat. Tail of nearly equal size throughout, slightly larger at the tip and bushy. Hair soft, long, and thick. Colour of the face yellowish grey with a band of black spots on the muzzle; whiskers yellowish white; forehead brown; head grey, marked with two black stripes passing from the eyes over and behind the ears. Back, sides, and limbs grey, with a dark stripe down the middle of the back, and numerous pale curved ones on the sides, becoming obsolete towards the belly, which is white. The tail is

ringed with black; the tip is black. The feet and inside of the legs yellowish grey. The average length is given as from two to three feet. The tail is nearly a foot in length.

Felis maniculata, Rüppell.—Body slender; head rather obtuse; ears rather long. Body and limbs markedly smaller and more slender than in *Felis catus*. Tail longer than in *Felis catus*, but not bushy. Colour, greyish yellow; a dark streak runs from the eye to the nose; eight narrow black bands run from the forehead upwards to the occiput. The cheeks, throat, and anterior part of the neck, white mingled with yellow. A dark streak runs along the back; the fore and hind limbs, which are rather paler in colour than the rest of the body, are also marked with several black bands. Length about two feet.

Now it appears to me that the greater number of the varieties presented by our domestic cat will be found on examination to tally much more closely with the latter than the first of these two descriptions, and I cannot but think that they originated from the *Felis maniculata*.

This opinion is somewhat confirmed also by the fact that the Egyptians tamed and domesticated that animal. It is also tolerably certain that they were imported in a tame condition to Rome, and what more likely than that the Romans in their turn introduced them into the rest of Europe and Britain. The very names of this animal in the various European languages are all forms of the Latin word *catus*—our own word "cat," for example, the French "chat," the Dutch and Danish "kat," the German "katze," and the Swedish "katta," all, therefore, I think, point to a Roman origin. Moreover, we find from the early English authors that domestic cats were at one time very scarce in this country, and fetched a considerable price, which certainly points rather to a foreign than a home origin. Another argument in favour of this theory, but one on which I would not wish to seem to lay much stress, is, that from time to time domestic cats have been shot in a wild and comparatively savage state in woods in different parts of the country, but all of them presenting the same well-known type and showing no disposition to assume the peculiar form of *Felis catus*, which would probably have been the case had that animal been the original stock from which they sprung.

Supposing, however, that the greater number of the varieties of our domestic cat, such as the tiger, the tortoise shell, and the charteux, are derived from *Felis maniculata*, there still remains another variety, of which I spoke at the commencement of this paper. This variety, one of which I saw in Scotland this year, and others of which I have seen at various times in different parts

of England, but which is, I believe, comparatively rare, presents some marked distinctions from our common domestic animals. It is considerably larger, being generally about three feet long, more stoutly built and bulky in the body than is usual with that animal. The general colour of the body is grey, with darker stripes which become obscure on the sides; the belly is white, and the inside of the legs is yellowish grey. The tail is decidedly thicker than is usual.

It will be at once perceived that this description tallies in a great degree with that given of *Felis catus*, from which source I have not the slightest doubt it is derived.

Thus, I think the two theories with regard to the origin of our domestic cat may in a measure be reconciled, by supposing that the common varieties have sprung from domesticated individuals of the *Felis maniculata* imported into Italy by the Egyptians, thence into Britain by the Romans, and that the large grey variety has originated from individuals of *Felis catus* which have been tamed at a subsequent period by the inhabitants of this island.
Bristol, December 1866.

A FLORA OF HIGH WYCOMBE.

By James Britten.

(*Continued from page* 126)

CLASS II. MONOCOTYLEDONES.

Division I. Dictyogenæ.

Order LXXIX.—Trilliaceæ.

Paris. *Linn.*

P. quadrifolia, L. Herb Paris. Bab. 312. Woods, not very common: Dane Garden Wood; between Toweridge and Bullock's Lane, abundant; Bradenham Woods.

Note.—I observe that the young plants have usually but three leaves; full-grown specimens from four to seven.

Order LXXX.—DIOSCOREACEÆ.

Tamus. *Linn.* Black Bryony.

T. communis, L. Bab, 313. Woods and hedges.

Note.—In autumn, this is one of our handsomest wild plants, the foliage frequently assuming a rich brown metallic hue, resembling that of the garden *Perilla Nankinensis*.

Division II. Floridæ.

Order LXXXI.—HYDROCHARIDACEÆ.

Hydrocharis. *Linn.*

H. Morsus-ranæ, L. Frogbit. Bab. 313. Ponds and ditches near the Thames: frequent about Great and Little Marlow; and in the ponds and ditches at the foot of Winter Hill, Berks.

Anacharis. *Rich.*

† *A. Alsinastrum*, Bab. Bab. 314. Ditches and streams, common: almost choking up the Dyke in Wycombe Park; in various parts of the rivers Wick and Thames.

Order LXXXII.—ORCHIDACEÆ.

Orchis. *Linn.*

O. Morio, L. Bab. 317. Meadows, not unfrequent: Kingshill: Wycombe Heath; plentiful about Park Lane, etc.

Note.—A very pretty variety is of frequent occurrence, having flesh-coloured blossoms veined with green.

O. mascula, L. Early Purple Orchis. Bab. 317. Woods, meadows, and open places, frequent: Keep Hill, etc.

O. purpurea, Huds. 317. Cook's Hall Woods, *Mr. T. P. Lucas !* Fennell's Wood, *Mr. Ullyett !*

Note.—I much regret that I have not yet seen this fine species growing; but have carefully examined Mr. Ullyett's dried specimen, which appears larger and handsomer than *O. militaris*, in a similar state. I must, however, admit that during the past spring (1866) Mr. Ullyett and myself could only find the latter in the Fennell's Wood locality; but Mr. Ullyett was at once struck with the different appearance of *O. militaris* from the plant which he had previously gathered there, in which he distinctly remembers that the helmet was of a *rich dark purple*. Another season will, I hope, set the matter completely at rest.

O. militaris, L. Bab. 317. Woods: "Marlow Wood, in plenty. *Mr. Gotobed*; Woods between High Wycombe and Great Marlow; *Mr. J. Rayer*," *Botanist's Guide*, *i.* 39. "Between High Wycombe and Hitchenden [Hughenden]. *E. B. Supp.*" *New Botanists' Guide*, *p.* 602. "On the precipitous bank of Bisham Wood, [Berks,] near the Quarry, both above and below the path, but sparingly." *Phyt. i.* 993. *O.S.* Fennell's Wood; Bradenham Woods; Dane Garden Wood.

NOTE.—A very pretty variety was found in Dane Garden Wood, in 1865, having white blossoms, without spots or blotches, the helmet and lip being tipped with purple.

O. maculata, L. Bab. 318. Woods, etc. : the commonest of our Orchdis.

NOTE.—The stem is occasionally spotted in the same manner as the leaves.

[*O. latifolia*, L. Bab. 318. Wet ground in Whittington Park, *Rev. W. Hunt Painter*; but perhaps a variety of *O. maculata*, with unspotted leaves, may have been mistaken for it. It has not been observed elsewhere in the district.]

O. pyramidalis, L. Bab. 319. Chalky places and woods, frequent; Fennell's Wood; Dane Garden Wood; Keep Hill, *Mr. T. P. Lucas*; banks by the terraces, Hughenden Woods; Bradenham Woods, etc.

GYMNADENIA. *R.Br.*

G. conopsea, R.Br. Sweet-scented Orchis. Bab. 319. Fennell's Wood; Dane Garden Wood; Hughenden Woods, very fine; Bradenham Woods, etc.

[*Aceras anthropophora*, R.Br. (Man Orchis) is said to occur in Whittington Park; but I suspect *Listera ovata* was the plant intended.]

HABENARIA. *R.Br.*

[*H. viridis*. R.Br., "Marlow Wood, rare. *Mr. Gotobed.*" *Botanists' Guide*, *i.* 39. I am unable to ascertain which wood is intended by this somewhat vague appellation; but have never seen *H. viridis* anywhere in the district.]

H. bifolia, R.Br. "Heathy places." Bab. 320. Naphill Common; rare in the district. ["Bisham Wood, especially the continuation of it on the right of the Maidenhead road." *Phyt. i.* 993. *O.S.* The next species was doubtless intended.]

H. chlorantha, Bab. "Moist woods and thickets." Bab. 320. Frequent: Fennell's Wood; Dane Garden Wood; Hughenden Woods, etc.

NOTE.—The latter is, with us, much the commoner species of the two. The habitats assigned to each, as quoted above, are admirably characteristic.

OPHRYS. *Linn.*

O. apifera, Huds. Bee Orchis. Bab. 320. Fennell's Wood; bank near White Hill; Bradenham Woods; gathered in these three localities in 1866. A single specimen found on Keep Hill, in 1863, and another in Wycombe Park, in 1864, by Mr. T. P. Lucas. Formerly "most abundant in a field at the back of the three houses on the bank near Miss Harrison's Mill, [between Wycombe Marsh and Loudwater,] close to a little wood of firs." *MS.* [Dane Garden and Hughenden Woods.]

O. muscifera, Huds. Fly Orchis. Bab. 321. Woods, not unfrequent:

Hughenden, Cook's Hall, and Fennell's Woods; Keep Hill. *Mr. Ullyett!* "In almost all the woods, more or less," about Marlow, *Phyt. i.* 993. *O.S.*

HERMINIUM. *R.Br.* Musk Orchis.

H. Monorchis, R.Br. Bab. 321. On Keep Hill, above the chalk quarry, and near the Park palings, plentiful.

SPIRANTHES. *Rich.*

S. autumnalis, Rich. Ladies' Tresses. Bab. 322. Whittington Park, on the grassy portion near Park Lane, abundant; "Keep Hill," *MS.*; "lane leading from Loudwater to Flackwell Heath"!

LISTERA. *R.Br.*

L. ovata, R.Br. Twayblade. Bab. 322. Woods, etc., not very common: by the Dyke in Wycombe Park; Hughenden Woods; wood near Toweridge; Whittington Park; Bisham Wood, Berks.

NEOTTIA. *Linn.* Birds' Nest.

N. Nidus-avis, Rich. Bab. 322. Woods, frequent: Wycombe Park Woods; Dane Garden Wood, etc.; Bisham Wood, Berks.

EPIPACTIS. *Rich.* Helleborine.

E. latifolia, All. Bab. 323. Woods, less frequent than the next species: Dane Garden Wood; Wycombe Park Woods; etc.

E. media, Fries. Bab. 323. Woods, common: Dane Garden Wood; etc.

NOTE.—I may mention the following among the marks which serve to distinguish these closely allied species. *E. media* is a taller plant than *E. latifolia*, and is altogether lighter in colour; the lip, which in *E. latifolia* is usually purplish, is in *E. media* almost colourless; in *E. media* it is longer than broad, terminating in a sharp point, while in *E. latifolia* the point is blunt, and usually curves under. The blossoms of *E. media* are usually larger than those of *E. latifolia*, and the spike is denser. *E. media* commences to blossom about ten days earlier than its relative.

β *E. purpurata*, Sm. ? "There is an *Epipactis* growing in the Stoken-church woods, which is, in its young state, quite purple in both leaves and stem; it must I suppose, be *E. purpurata*; I have seen it also in Bisham Wood, but have not had an opportunity of seeing it in flower." *Phyt. i.* 993, *O.S.* I have received a specimen gathered near Hampden, to which the preceding description well applies; but I was equally unfortunate in obtaining it in blossom.

E. palustris, Sw. Bab. 323. In a bog near the Church at Lane End, *Mr. T. P. Lucas!*

CEPHALANTHERA. *Rich.*

C. grandiflora, Bab. Bab. 324. Woods, frequent: Wycombe Park, etc.: also on banks, as on Keep Hill, but less frequent in such habitats.

(To be continued.)

M. DESEGLISE'S REVISION OF THE GROUP *TOMENTOSÆ* OF THE GENUS *ROSA*.

By Chas. P. Hobkirk.

(Continued from page 130.*)*

Lapeyrouse, Hist. Abrég. des Pyrenées (1813), p. 284, No. 9, gives for his description the diagnostic phrase of the *flora britannica* without any comment.

Trattinick, Rosacearum monographia (1823), vol. i. p. 117, says:—"Foliolis elliptico ovatis, utrinque mollisime tomentosis, sub-cinerascentibus."

Smith, English Flora (1824), vol. ii. p. 383, No. 9:—"Leaves glandulose beneath." The synonyms cited are contradictory to the descriptions! Thus, "Flora britannica (1800), foliis utrinque mollisime tomentosis." Lindley, "Leaves covered with a whitish down, and sometimes glandulose beneath, exhaling on pressure an odour of terebinth." Lindley may say that the leaves are sometimes glandulose, since he admits *R. scabriuscula* Sm. as a variety of *R. tomentosa*; but his type A. *vera* is none the less deprived of glands on its under surface.

Villars, fl. du Dauphiné vol. iii. p. 551, says, "The leaves from five to seven, are wide, more or less pointed, villose on both sides." Bauhin, hist. pl., vol. ii. p. 44 fig. *Good*: The figure is far from being good, as the peduncles, calyx-tube, and calyx divisions are glabrous, which is in contradiction to the text of the English Flora! since Bauhin says in his description:—"Cui foliola quina, vel septena, subrotunda, rugosa albicantia hirsuta non nihil odorata."

Duby, Botanicon Gallicum (1828), vol. i. p. 178, "Foliolis ovatis..... plus minus tomentosis;" in his var. A., type of his *tomentosa*, he says, "Foliolis.....molliter tomentosis."

Host, flora Austriaca (1831), vol. ii. p, 21, "Foliola ovata serrata villosa, facie saturate dorso pallide viridia."

Reichenbach, fl. excurs. (1830), No. 3975, "Foliolis ovali-ellipticis duplicato patenti-serratis cano-pubescentibus."

Hooker, British Flora (1835), p. 234, certainly makes a confusion much to be regretted. He seems to us to describe as *R. tomentosa*, the *R. scabrius-*

cula of Smith, a very different species, and one which is commoner in England than *R. tomentosa*.

Petermann, Fl. Lipsiensis (1838), p. 364, No. 782, "Foliola 5-7 ovali-oblonga, cinerascenti-virentia villosiusculo-pubescentia."

Gonnet, Fl. elementaire de France (1847), p. 478, "Leaves ashy pubescent cottony on both faces."

Kirschleger, Fl. d'Alsace (1852), vol. i. p. 249, "This species is distinguished from *R. canina* by its foliage being *softly tomentose grey*, and by its straight prickles, upright, rather long; and from *R. pomifera* by its ovoid fruit *twice as small, red, upright, slightly hispid*, cartilaginous, and by its *leaves elliptico-oval* and *not elliptico-lanceolate*."

Cosson and Germain, flore des env. de Paris (1861), p. 221, "Leaves more or less ashy on both sides, sometimes a little glandulose beneath, with 5-7 leaflets."

Cariot, Etudes des Fleurs (1865), vol. ii., p. 190, "Leaves tomentose on both sides destitute of glands beneath."

On concluding this list of authorities—English, French, and German—M. Déséglise remarks that English authors have certainly confounded *R. tomentosa* Sm., and Smith has apparently taken the rarest English form on which to found his species. Then later still *R. scabriuscula* Sm. has been confounded with *R. tomentosa*, and these two plants are found united under the same name in books, and mixed in herbaria.

M. Grenier, flore de Jura (1864), p. 234, says that he has preserved the name of *R. tomentosa* for this species, because the English specimens which he has, are identical with the French plant. M. Grenier cannot surely have paid any attention to the No. 1662 (Fl. Gall. et Ger. exsic.) gathered by himself and distributed by the late M. Billot! Had he done so, he could not have said that the English specimens are identical with the French plant, for the specimens gathered at Besançon are far from having, as M. Grenier says, (l. c.) "*Leaves charged with fine glands beneath*," No. 1662, having the leaves simply tomentose and destitute of glands.

Smith's herbarium presenting the same confusion as subsequent authors in describing *R. tomentosa*, we must have recourse to the text of the *Flora britannica*, without taking any account of the errors which have since been committed, for all or rather the greater proportion of botanists describe this plant according to the characters first assigned in 1800, and which De Candolle in 1805, Gmelin in 1806, Persoon in 1807, Trattinick in 1823, Reichenbach in 1830, Boreau in 1849, have since confirmed. M. Déséglise again

writes (p. 27), If new studies and researches should cause it to be acknowledged that the *R. tomentosa* of our French Floras is not that of Smith, I should be disposed to accept the name proposed by Mr. J. G. Baker (*R. Dilleniana*, Bak. in litt.) for our species, but without further proof I must adopt a contrary opinion, and preserve the name imposed by Smith in 1800.

From the foregoing considerations, it must appear clear to everyone, even had they not before known it, that Smith's *Rosa tomentosa* requires revision, and I shall now, therefore, proceed to translate M. Déséglise's diagnoses of this section, giving in full those species which are known to be English, and noticing casually those found only in the Continent of Europe.

SECT. TOMENTOSÆ, Déseg. Obs. sur. le class. du genre *Rosa*, in "Naturalist" (1865), vol. 1. p. 313, et extr. p. 16 ; *Villosæ* Besser. Enum. Pod. et. Vohl. p. 60. De Pronville (Lindley) monog. p. 75, part. ; Rchb. Fl. excurs. p. 615 (excl. *R. glandulosa* Bell.) ; *Caninæ* Seringe in D.C., prod. 2 p. 611, part. ; *Diastylæ* trib. *Orthoacanthæ* Godet fl. Jura p. 204,

I. R. VESTITA. Godet fl. Jura (1853) p. 210 ; Reuter, Catal. 2 ed. p. 65 ; Grenier, fl. Jurassique p. 232 ; *R. montana* D.C. fl. fr. 5, p. 532 (non Vill) ; Billot, exsic. No. 3078 !

This form, which flowers in July, is found in mountainous regions in many parts of France, Savoy, and Switzerland.

II. R. ARDUENNENSIS. Crépin. Notes sur. q.q. pl. rares et crit. de la Belgique, in Bull. Acad. roy. de Belg. 2nd series, tome XIV., No. 7, et extr. p. 30 (1865) ; R. *spinulifolia*. v. *Foxiana*. Thory in Redouté Ros. 3 ? *R. mollissima* b. Lejeune, comp. fl. Belg. 2, p. 142.

A low shrub, with few prickles, equal, straight, slender, horizontal, in the form of a disc at the base ; petioles pubescent glandulose, with or without prickles beneath ; leaflets 5-7 the lateral ones petiolate, the terminal one somewhat cordate at the base, thin oval-elliptic rounded at the base, more or less attenuated at the summit, *almost glabrous on both sides, and covered both above and below with numerous resinous glands*, doubly dentate, teeth glandulose ; stipules glabrous above, glandulose beneath, with slightly divergent auricles ; peduncles solitary or 2-4 together, hispid glandulose furnished with *very large* bracts, glabrous above, glandulose beneath, equalling or somewhat shorter than the peduncles ; calyx-tube globular glaucous-green, hispid glandulose, divisions terminated by a foliaceous appendage more or less denticulate, 2 entire, 3 pinnatifid, glandulose beneath,

equalling the corolla, upright after flowering; styles villose, disc very short; corolla large of a *bright rose* colour; fruit *globular, orange red*, crowned by the connivent, persistent calyx-divisions.

May, hedges and thickets, Belgium. England, hedges at Thirsk; (Baker.)

III. R. CUSPIDATA, Bieb. fl. tauro-cauc. (1808-19) 1, p. 396; 3, p. 339; Tratt., monog. ros. 1, p. 121; Rchb. fl. excurs. 2, p. 616; Mutel fl. fr. i. p. 348; Boreau fl. cent. ed. 3, No. 889; Déség. monog. No. 96; Cariot etudes des fleurs, ed. 4, vol. ii. p. 190; *R. Seringiana*, Godr. fl. lorr. ed. 2, vol. ii., p. 255; *R. tomentosa*, Woods, Brit. sp. of Rosa (1816) in trans. Linn. Soc. vol. xii. p. 197, et herb. No. 38 (non Smith); Grenier fl. Jurass. (1864), p. 234; Wirtgen exsic. No. 344; Baker, Herb. Ros, Brit. No. 9.

R. germinibus ovatis pedunculis calycibusque hispidis, aculeis caulinis validis recurvis, petiolis glanduloso-villosis aculeatis, foliolis (majusculis) ovato-lanceolatis, acutis argute glanduloso-biserratis, utrinque villosis subtus glanduloso-scabris; floribus corymbosis. M. Bieb. l.c. vol. iii., p. 339, No. 975.

A low shrub, branching, prickles somewhat robust, whitish, scattered, those of the stem dilated at the base, somewhat curved at the summit, those of the young branches rounded at the base, horizontal; petioles *villose glandulose*, prickly; leaflets 5-7 the lateral petiolate, the terminal one rounded at the base, more or less attenuate-pointed at the summit, rather large, *oval-lanceolate*, more or less obtuse and attenuate at the summit, more or less pubescent above, *whitish, softly villose with small scattered glands beneath*, doubly dentate, with glandulose teeth; stipules pubescent above, pubescent and glandulose beneath, the upper ones dilated, with pointed divergent auricles; peduncles hispid, solitary or corymbose (3-10), furnished at the base with oval acuminate bracts, pubescent and bearing scattered glands beneath, equal to, or longer than, the peduncles; calyx-tube *ovoid, hispid;* calyx divisions tomentose inside, glandulose beneath, with appendages, 2 entire, 3 pinnatifid, with linear lanceolate appendages bordered with pedicillate shining glands, equalling the corolla, reflexed, afterwards upright and caducous; styles rough, disc plane; flowers *rose-colour, becoming afterwards white;* fruit *ovoid*, red.

France. Belgium. England—Holywell, Northumberland; Cleveland, Thirsk, Thornton, Gormire, Yorkshire (the Gormire specimens differ in having the branches without prickles); Baker.

IV. R. TUNONIENSIS, Déség. Herb. ros. No. 36. May and June, upland thickets, Savoy.

V. R. OMISSA, Déség. exsic. herb. ros. No. 57. June, mountains, Savoy.

VI. R. ANNESIENSIS, Déség. exsic. herb. ros. No. 74. June, July, thickets in the mountainous regions of Savoy.

VII. R. DIMORPHA, Besser. June, July, mountainous regions, France, Belgium.

(To be continued.)

Reviews.

Quarterly Magazine of the High Wycombe Natural History Society. No. 3.

This local natural history journal, of which the third number is before us, has decidedly improved since its commencement. The present number contains one or two useful papers, chief amongst which is that by Mr. James Britten on the "Additions to the Wycombe Flora in 1866." These plants are seven in number, viz :—*Cerastium arvense*, near Oakridge, *Erica cinerea*, Wooburn Common, *Myosotis cæspitosa*, near Whittington Park, *Vicia gracilis*, bottom of White Hill, *Lactuca virosa*, near the same place, *Onopordum Acanthium*, two plants only in a hedge near West Wycombe, *Cuscuta Epithymum*, on Wooburn Common. In addition to the above a number of fresh localities have been observed for some of the rarer species.—Mr. M. C. Cooke has a paper entitled "Amongst the Grasses," which contains a short account of our unbranched British *Clavariæ*. The number also contains the first part of a list of Wycombe Birds by Mr. H. Ullyett, the proceedings of the Society, and three pages devoted to correspondence.

This young society is setting an example which may well put older societies to the blush, and we heartily wish them every success.

Reports of Societies.

High Wycombe Natural History Society.—Second Winter Session, 1866-67.—The third conversazione was held on the 15th ult., at the house of John Parker, Esq., and was numerously attended. Three papers were read ; the first, "On the Cave at Brixham, Devon," kindly forwarded by the Rev. W. Hunt Painter ; the second, on "The Mammalia of High Wycombe," by Mr. Ullyett ; and the third by the President, on "Diatoms and Desmids," being a continuation of that read at the last meeting. Specimens and coloured diagrams illustrated the various subjects. Among the objects exhibited may be mentioned a collection of Madeira Ferns, British Spiders, Land and Fresh-water Shells, Dried Plants (chiefly local), Chinese Insects, and many more. Several illustrated works on Natural History were also on the table. The President's Microscope was, as usual, in great requisition, various Diatoms and Desmids being examined by its aid.

MANCHESTER LITERARY AND PHILOSOPHICAL SOCIETY.

Ordinary Meeting, January 8th, 1867.

Mr. Binney, F.R.S., F.G.S., exhibited two remarkable fossils discovered by Mr. Joseph Tindall, of Thomas-street, Huddersfield, in the lower coal measures near that town. One was an insect, and, according to Mr. Tindall, belonged to Dr. Dawson's genus *Xylobius* and probably to his species *Sigillariæ*. It was found in an old deep mine at Cooper Bridge, and is the first instance of a specimen of that genus having been met with in England. The other bore some resemblance to the pupa state of a coleopterous insect, not much unlike the

pupa of a nut weevil or some such insect. It was found in the Cinderfield Dyke Pit at Bradley, near Huddersfield. These specimens give us evidence of the former existence of insect life during the carboniferous epoch which a few years since we should scarcely have expected; but after the discovery of a fossil spider in the German coal measures, scarcely to be distinguished from a recent genus, we must expect great additions to be made to the carboniferous *fauna*, as, doubtless, the rich and luxuriant vegetation of that remote period would afford food and shelter for numerous insects.

[Our readers will observe that Mr. Binney made the above statement on the 8th January; on the 17th, Mr. Woodward, at Glasgow, announced a specimen of *Xylobius Sigillariæ*, found in Scotland, as the first discovery of that species in Britain. Mr. Tindall showed us his specimen in April last, so that priority of discovery and announcement may fairly be claimed for the Yorkshire example.—Eds. Nat.]

Observations.

Appearance of V. urticæ on Christmas-day.—My notice was attracted this morning by seeing an unusually lively V. Urticæ fluttering about on the inner side of a kitchen window, in the morning sun, which was shining brightly at the time. The insect seemed to enjoy itself to the utmost, now flying rapidly across the window, and then fanning its wings with perfect grace. I suppose it to have been awakened from its hybernated state, wherever the locality may have been—perhaps somewhere in the same house—by the increased warmth of the fire on the day for cooking purposes; then, naturally flying to the window for escape, and there coming in contact with the sun's rays, it might have mistaken the season for spring instead of mid-winter.—F. Wilkinson, Easthorpe, Christmas-day, 1866.

A List of Land and Fresh-water Molluscs belonging to Bristol and its immediate Neighbourhood.

Cyclas cornea. River Avon—Hotwells.
Bulimus tentaculata. River Avon—Hotwells.
Planorbis spirorbis. Grass pools, Durdham Down.
P. vortex. Grass pools, Durdham Down.
P. contortus. River Trym, at Coombe.
Lymnæus peregra. Ponds, Redland fields.
L. auricularia. River at Stapleton.
Arion ater. Durdham Down, fine.
A. hortensis. In gardens, more than one likes.
Limax marginatus. Do. do.
L. flavus. Do. do.
L. agrestis. Do. do.
L. maximus. Do. do.
T. Maugei. Garaway's nursery.
Vitrina pellucida. Head of Coombe Dingle.
Zonites cellarius. Fine at Hotwells.
Z. cellarius, var. *complanata*, occasionally found.
Z. cellarius, var. *compacta* once taken.
Z. alliarius. Garaway's grounds.
Z. nitidulus. Durdham Down.
Z. crystallinus. Under stones on Durdham Down
Helix aspersa. Everywhere.
H. nemoralis and its varieties *hortensis* and *hybrida* in various places.
H. cantiana. Formerly very plentiful in a hedge by the river Avon, but now destroyed by a railway.
H. rufescens. Fine, Durdham Down.
H. rufescens, var. *albida*, found occasionally.
H. hispida. Durdham Down.
H. concinna. Durdham Down.
H. concinna, varieties *albida* and *minor*, occasionally on Durdham Down.
H. fusca. Coombe Dingle.
H. virgata. Fine, Hotwell Road.
H. caperata. Durdham Down.
H. caperata, var. *ornata*, Durdham Down.
H. caperata, var. *subscalaris*, once on Durdham Down.

H. ericetorum, var. *minor*, Hotwell Rocks.
H. rotundata. Stoke Wood.
H. rotundata, var. *alba*, once on Durdham Down.
H. rupestris. Garden wall of Eldon Villa.
H. pulchella. Under stones on Durdham Down.
H. lapicida. Clifton Rocks and Stoke Wood.
Bulimus obscurus. Hotwell Rocks.
Pupa secale, Hotwell Rocks.
P. umbilicata. Everywhere.
P. marignata. Under stones on Durdham Down.
Clausilia nigricans. Everywhere.
C. lubrica. Durdham Down.
C. minimum. Moss, Leigh Woods.
C. elegans. Clifton Rocks and Stoke Wood.

Eliza C. Jellie, Eldon Villa, Redland, Bristol, Nov. 14, 1866.

Original Articles.

A FASCICLE OF NOTES ON FIELD BOTANY.

By Edwin Foxton Firby.

It is certainly a great relaxation, when we have been hard at work all the morning and have been puzzled and re-puzzled with various intricate problems, to escape into the woods and fields, from books to the one grand ever-open volume of Nature, with its divinely mystic hieroglyphics inviting our decipherment; to inhale the sweet fresh air; scent the delicate flowers, the delicious redolence of which is borne to us on the ambient wings of Zephyrus, and to listen to the merry songs of our feathered little friends. Here by the side of this woodland stream, with its translucent waters and bed of bright yellow sands gleaming like gold in the rays of the meridianal sun, we can almost fancy ourselves in some poetical Vale of Tempé. On the lichen-covered bank under some leafy covert we can enjoy that dreamy state of languor so indescribably soothing to the chafed and restless mind—the *dolce far niente* of the Italians, the Latakian *kieff* of the Turks. As, however, we have other objects in prospective than sitting down on a moss-covered bank and fancying ourselves in Arcadia, be it ever so inviting, we must hasten and see what the Fates have in store for us. To have some purpose, tangible and real, in view, considerably enhances the interest of our trip, no matter what the purpose may be. Perhaps it may be our intention to procure certain wild roots to add to our garden stock—ferns and mosses to adorn the rockery, or even fossils or wild flowers to exhibit as trophies of pedestrianism. It may be that we intend searching for beetles, moths,

larvæ, or butterflies, or to observe the habits of some of Nature's many interesting productions. Probably, also, we may be seeking for birds' nests and eggs; and here, undoubtedly, we shall find an ample opportunity for the display of our patience, perseverance, and keen sight, for when the hedges and river-banks are covered with leaves, a nest is by no means an easy thing to discover; and although we may, by accident or watchfulness, observe a bird approach to its nest or retreat from it, yet even this will not be an every-day occurrence. But any one of these occupations serves to give us an interest that is never obtainable if we merely "take a walk." Now, speaking of a walk, I know of nothing under the sun that is probably more ambiguous in meaning or more dull, dreary, and stupid in reality than that ordinary mechanical operation—a walk, especially when the scene of the performance is a road or street where the clouds of dust seem to be actuated by Mephistophelian instinct, and are whirled along like some veritable African simoom. Many people believe that when they have taken a walk, a very important duty has been discharged, and a most health-giving process gone through—that to take a walk every day, of a certain measurable distance in a measurable portion of time, is a certain antidote against illness. It may be granted that fresh air and exercise are both essential to health, but something more is required. We require change of thought, of mind, and feeling just as much as change of air; and this we obtain when we adopt a thorough change of occupation, such as results from a *ramble* in the country in search of something definite and interesting, in the way of Natural History. When a taste for Nature is once engendered, and an interest taken in searching out those occult mutations which occur amongst many of even the most infinitessimal creatures in creation, a walk in the country becomes an ever-varying Kaleidoscope of amusement; for then every pool of water, hedge, or bank teems with well-known marvels, and instead of our rushing on, unmindful of all around us, or as ignorant of all we see as a monkey who glances at the stars, we shall, undoubtedly, discover much more actually to amuse us than will those who have made the vicinity of towns and high roads the *ultima Thule* of their peregrinations.

There is always something interesting to be found on the banks of a river; for even in England we may, where rivers or even streams abound, watch the crafty proceedings of some old water-vole, whose secure retreat is entered from beneath the water-level; or we may perceive that most cunning of birds the moor-hen, which, when almost within reach, noiselessly glides

away, and lies hidden we know not where, although we may be certain it is within six feet of us. There yet remain some few localities where the graceful otter can be found; but he who wishes to observe this creature in its native state must employ even more caution in his approach to its haunts than is practised by even a hungry cat when creeping towards her unconscious prey. You can obtain great amusement by watching the movements and position of various members of the finny tribe, the habits of which may be studied with advantage from the river-bank, and useful memoranda also be made as to the time and conditions selected by the fish for feeding, and the nature of the fly, or other food, most sought after. There are countless other objects of great interest to the practical, out-of-door naturalist, as Daines Barrington would have called himself—*quæ nunc describere longum est.*

Amongst the most interesting members of the floral world, to my mind, at least, are the various kinds of aquatic plants, not only from their places of growth, but from the singular mechanical contrivances exhibited in many of them for their support and safety, the perfecting of their seeds, and their subsequent dissemination. All through the summer months one might almost imagine that the silent pools and slow-paced rivers re-floated on their limpid surfaces the flowery coronals that in the olden times were used by maidens to dress them with in honour of their haunting Naiades.

Fringing the river-bank with its fresh verdure, we find the Mare's-tail, *Hippuris vulgaris*, waving its green tresses of linear thickly whorled leaves, in the axils of which its inconspicuous flowers are placed. The order to which this plant belongs, *Haloragaceæ*, is unimportant, yet in the situations in which it grows it is not only ornamental, but reaching, as it sometimes does, two or three feet in height, it forms a screen for its more delicate and fragile neighbours, and sheltering forests for water-newts and frogs. Here the Yellow Water Iris, or Corn Flag, *Iris Pseud-acorus*, lifts its sword-shaped leaves and flaunts its yellow banners, one of the showiest of our English marsh-plants. This plant is interesting in an heraldic point of view, being the one which is supposed to have been adopted as the *Fleur-de-lis*, the symbol of French monarchy. It is supposed to have been introduced into the arms of France about the year 1140, being first borne by Louis VII. This monarch, who had exercised regal power during the life-time of his father, had probably adopted and worn it even prior to this date as his badge or cognizance, as our own Plantagenets distinguished themselves by bearing a sprig of broom; and from this circumstance its present name may be derived, being a corruption of *fleur-de-Loys*, or flower of Louis. Some, however, believe

it to be so called because it grew in great abundance on the banks of the Lys, a river rising in the north of France and joining the Escaut near Ghent. While some think the *fleur* is an Iris, others assert it to be the head of a lance, and others even consider it to be designed for a bee, we think it more probable that it represents the blossoming flag or the reed, placed, instead of sceptre, in the hands of the early Frankish Kings at their proclamation. Close at hand may be observed the wax-like drooping blossoms of Solomon's Seal, *Convallaria multiflora*, so called because it was superstitiously supposed that the wise King of Israel had stamped the plant with his seal, and thus endowed it with extraordinary efficacy. This plant exhibits the peculiarity of a subterranean stem, growing horizontally, as do also the Iris and some other plants, and sending out rootlets as it runs along, and is one of the many versatilities in which Nature, never wearied of invention, has indulged. Loving the same moist neighbourhood, the scented Water-Mint, *Mentha hirsuta*, as the old herbalists called it, and which was in great request by dainty ladies of the Elizabethan age for the purpose of aromatising their baths, spreads its perfumed beds of downy serrated leaves and close round heads of silvery grey whorled blossoms. This plant belongs to the valuable labiate-tribe, *Labiatæ*, which may be easily recognised by the tubuliform calyx and monopetalous bilabiate corolla, square stems and opposite leaves, replete with glandular receptacles of aromatic oil.

Here, too, we may sometimes find the tall flower-spikes of the Marsh Orchis, *Orchis latifolia*, the "long purples" in the fantastic garland of "Ophelia;" and at its feet, dipping its graceful branches to the margin of the stream beneath, Moneywort, *Lysimachia nummularia*, opens its smooth, opposite shining leaves, decked towards the end of the stem at every joint with large, bright yellow flowers. This pretty plant, which is as freely cried through the streets of London under the name of "Creeping Jenny," as "Rose-a-Ruby," *Flos adonis*, was by the herb-women of East Cheap in the days of Gerard, belongs to the primrose tribe, *Primulaceæ*, which have monopetalous corollas generally quinquefid, as is the calyx; one style, and five stamens. Amongst the tall plumed sedges another member of this family is seen lighting up its whereabouts with the fine emerald green of its branched stem and large terminal panicles of gamboge-coloured flowers. This is the Great Yellow Loosestrife, *Lysimachia vulgaris*, which, while in beautiful contact with it, its namesake the Spiked Purple Loosestrife, *Lythrum Salicaria*, sends up its tall tapering spikes of purple flowers, from two to four feet in altitude, received its name, according to Linnæus, from Lysimachus

King of Sicily, and our word "loosestrife" is simply a translation of the old Greek name. It originated in the absurd idea entertained by the ancients that, when these plants were put on the yokes of restive oxen, these animals, became gentle and submissive. Here, also, towards the end of summer, the lofty-growing Water Parsnep, *Sium angustifolium*, spreads above the encircling foliage its large pinnated leaves, and long flat umbels of white flowers, a mode of inflorescence which distinguishes the umbelliferous tribe to which the plants belongs, and readily fixes its characteristics on our remembrance, though the families of the order are by no means so easily ascertained. The upper part of the flower-stem branches into a number of rays resembling those of an umbrella, each of which supports a smaller set, which form the pedicles of the flowers; this is called a compound umbel, and with two exceptions, the Sea Holly and the common Marsh Pennywort, *Hydrocotyle vulgaris*, all the British plants of the order have compound umbels. The leaves of the greatest number are divided, and the flowers, like those of the Narrow-leaved Water Parsnep, generally white. Many of the plants in this order are useful vegetables; others abound in wholesome aromatic oils; some are valuable medicinally; and even the poisonous ones, of which there are several, when properly administered afford remedial and therapeutic qualities.

The most dangerous of the tribe of umbelliferous plants, the true Hemlock, *Conium maculatum*, is easily recognized by its large dark-green, elegantly cut leaves and smooth stem, spotted with leopard-like spots of purple. But while we are descanting at such length on the *Umbelliferæ*, we are forgetting the beautiful "Meadow-sweet," *Spiræa Ulmaria*, whose feathery tufts of cymose flowers, scented, and of a creamy whiteness, undulate, and meet and mingle with the gentlest breath of summer air that wanders by them. Its odour is very fragrant, but in a close apartment it becomes injurious from its evolving prussic acid. Mr. Piesse, in his *Art of Perfumery*, tells us that it yelds in distillation a sweet-smelling attar, which is not, however, made use of by perfumers.

As yet we have not exhausted half the floral dwellers on the river's bank. The golden cups of Marsh-marigold, *Caltha palustris*, glitter above its heart-shaped dark glossy green leaves, in exquisite contrast with the turqnoise-hue of the great Water Scorpion Grass or "Forget-me-not," *Myosotis palustris*, around which certain sentimental associations are lastingly entwined. The flowers of this plant grow in unilateral, leafless clusters, and may be distinguished by the yellow eye and small white ray at the base of each lobe of the corolla. This charming little flower belongs to the Borage-tribe,

Boraginaceæ, and is a true aquatic, with a long rooting stem and bright green roughish pubescent leaves. In close proximity to its lovely clusters the Water-crowfoot, *Ranunculus aquatilis*, moors her green rafts, freighted with nymph-like flowers, milky white but for their golden boss of yellow-stamens; and floating islands of the Frog-bit, *Hydrocharis Morsus-ranæ*, powdered with petalous snow, pass by with unseen motion; nearer the bank the Water-Violet, *Hottonia palustris*, sends up its solitary stalks and delicate flesh-coloured corollas, a floral beacon above a sunken reef of fringy leaves; here, too, the curious Bladder-wort, *Utricularia vulgaris*, bears its bright yellow flowers in racemes, its shoots or runners floating horizontally in the water, clothed, as are those of the Water-crowfoot, with capillary or hair-like multifid leaves, which in the Bladder-worts are furnished, as well as the roots and stems, with minute bladders, which are filled with water till it is necessary the plant should rise to the surface to expand its blossoms, at which time they are found to contain only air; by the aid of these the plant floats, but in autumn it descends to the bottom to ripen its seeds, when the air again gives place to water. Wilson has observed of the bladders of *Utricularia vulgaris*, also called Hooded Milfoil, that "they have *an orifice closed by an elastic valve opening inwards*, and of a much thinner texture than the bladder to which it is attached." Aquatic insects are frequently found entrapped in their treacherous vescicles.

Not less wonderful is the contrivance observable in the loveliest of our indigenous aquatic plants, the white water-lily, *Nymphæa alba*, which through the balmy sunshine of July lifts above its peltate floating leaves, its cup-shaped flowers filled with golden stamens, which unfold about seven in the morning, and close soon after four in the afternoon. If we watch them we shall find that the cup, which is slightly elevated in the forepart of the day, shrinks down close to the surface of its fluid bed at night, and by and by, when the the fructification is complete, descends entirely beneath the surface; a movement which is affected by the stems assuming a spiral form, and thus dragging the flower to the bottom. The white water-lily is one of the greatest ornaments of the English and Scotch lake districts; while the yellow one, *Nuphar lutea* more commonly occurs in slow streams and stagnant pools. *N. pumila* is not commonly to be met with. To this tribe *Nymphæaceæ* belong the magnificent *Victoria regia*, or royal water-lily of South America, the size of which is in keeping with the gigantic proportions of the Amazon and Essequibo, on whose waters it displays its beauty, is uurivalled in the vegetable world—and the Red Lotus or Bengal Lily, rendered so tragically famous

by its mystical use, previous to the recent outbreak of the Sepoys in India. This Lotus is not the same as that "mythic lotus"—the "holy and beautiful plant" *Nelumbium speciosum*,—the fruit of which is considered to have been the Egyptian bean of Pythagorus, and the flower the lotus so often represented on the sculptured monuments of Egypt and India, and before which the Hindoos prostrate themselves to this day.

Leaving reluctantly the vicinity of the river, let us take our homeward route through the rich pasture fields lying between it and the wood so recently visited. Observe how a little time has materially altered the appearance of the hedges then just springing into foliage, now redolent of the wild rose and "lush honeysuckle," and undergrown with many a wild flower condemned to "waste its sweetness on the desert air." The Hawthorn or May has shed its scented petals, but the "Traveller's Joy," *Clematis vitalba*, spreads its green shades, and decks its climbing branches with redundant panicles of greenish white flowers. Wanting the usual appendages of parasitical plants, it takes hold of the adjacent shrubs and trees by means of its climbing *petioles*, or leaf-stalks; an analogous process which my readers may observe for themselves in the pretty little climbing *Tropæolum peregrinum*, the so-called Canary-bird flower of their gardens.

Here the great Bindweed, *Convolvulus sepium*, trails its green wreaths and measures time by its flower (each blossom of the *Convolvulaceæ* lives but a day.) The order to which this plant belongs is well distinguished by its five-plaited infundibuliform corolla of one petal, which, when inverted, resembles a little tent, in this species of the purest whiteness; the stems when broken exude a lactescent fluid. "It receives its name from the Latin *convolvo*, 'to entwine,' from the twisting habit of many of its species." Bordering the field-path we shall find its lowly relative *Convolvulus arvensis*, weaving its pretty flower-pattern amongst the sunburnt grass, and exhaling from its pink and white-striped corollas, a faint, sweet, hawthorn-like fragrance. Here, also, the Silverweed, *Potentilla anserina*, opens its glittering flowers, and displays with every ruffling breeze the silvery lining of its elegantly cut foliage; and Heart's-ease, *Viola tricolor*, prone in the sun, expands its yellow petals dashed with purple. Under the hedge-row, tufts of White Campion, *Lychnis vespertina*, some specimens of which are sometimes to be found with large bright pink blossoms, flushes the flower-snow with which the Great Hedge Bedstraw, *Galium mollugo* powders it. If we examine this light tangle of leaves and stems, and spreading panicles of minute flowers, we shall discover that its character is marked by the signs

which distinguished the Sweet Woodruff, *Asperula odorata*, and that it consequently belongs to the Madder tribe. Half way up the hedge the White Briony, *Bryonia dioica*, depends its large rough, light green leaves, and bunches of many star-shaped whitish flowers delicately veined with green. Our forefathers knew it as "Our Lady's Seal," and though now accounted too dangerous to be tampered with in ignorance, was then used medicinally in many diseases. The delicate spirals of this plant are very elegant, and deserve attention. In fair contrast with the grass and moss surrounding it, the Bladder Campion, *Silene inflata*, sets up its erect stems and panicles of pure white drooping flowers, one of the *Caryophyllaceæ* or chickweed tribe. The calyx resembles a little inflated ball, of a silvery shade, delicately veined with purple, and the foliage is smooth and covered with that peculiar pale green bloom which is termed *glaucous*. Passing on we remark the handsome Milk-Thistle, *Silybum Marianum*, or as it was anciently called, "Our Lady's Thistle," spreading its wavy spinous leaves, with their deep green shining surfaces, broadly marked with milk-white veins, at our feet. In the days of religious superstition this appearance was considered miraculous, and the whole plant, in consequence, to abound in remedial qualities; at present it is remarkable only for its appearance, which, to those who can find beauty in the leafage as well as the inflorescence of a plant, is almost as worthy of perpetuation in architectural embellishment as the Greek *Acanthus*.

As we wnader on we reach a little burn, edged with blue Brooklime, muffled with mosses, bent over by the drooping Comfrey, and here and there filled up with tufts of Watercresses, *Nasturtium officinale*, the matted stems and rootlets of which shine through the liquid stream of a diaphanous whiteness. We have no need to describe this familar vegetable representative of our streams and brooklets to our London readers, where it is more popular and better known than any other member of its tribe, the *Cruciferæ*. Earlier in the season we should have found its pretty relative Cuckoo-flower, or Common Bitter Cress, *Cardamine pratensis*, whitening the margin, as it did that of the Avon in the days of Shakespeare; and where the glazed cups of the Lesser Spearwort, *Ranunculus Flammula*, are shining now, the bright, tender foliage of the common golden Saxifrage was then crowned with its flat clusters of yellowish green flowers.

The Comfrey, *Symphytum officinale*, with its large coarse hoary leaves and campanulate flowers, in clusters white, pink, and blue, belongs to the tribe of Figworts, *Scrophulariaceæ*, and is allied to the Yellow-Rattle, *Rhinanthus Crista-Galli*, the seeds of which we may hear rustling in their

husky capsules as the soft wind stirs the flowering grasses, amongst which the bright colour of its yawning corollas may still be seen mingling with the red-blossomed Sorrel, *Rumex acetosa*, and the fair disks of the Great White Ox-eye, *Chrysanthemum leucanthemum*, while the Plantain, *Plantago media*, lifts up its fragrant spikes, and adds their purfume to that of the sweet-scented Meadow-grass, *Anthoxanthum odoratum*, to the presence of which it is said so much of the well-known odour of new mown hay is owing, and is supposed to be a principal cause of "hay-fever," and the pretty Melilot *Melilotus officinalis*, or Wild Laburnum. Here and there, Ragged Robin, *Lychnis Flos-cuculi*, throws abroad its loose panicles of fringy rose-coloured corollas, one of the prettiest of our native wild plants; and close at hand, the broad white heads of rayed flowers of Sneezewort Yarrow, *Achillea ptarmica*, famous for its cephalic virtues, are accompanied by the violet-blue oblong spikes of Self-Heal, *Prunella vulgaris*, another species of the Labiate family; its rustic names of Carpenter's herb, Hook heal, and Sicklewort, will express the qualities which it was supposed to possess of healing wounds and abrasions. In Germany, France, and elsewhere, the same faith existed in it as an excellent vulnerary; so that it was proverbally said "that he needed neither physician, nor *Chirurgeon*, that had *self-heal* and sanicle to help himself."

Lowly seated amongst the swaying grasses, through which the golden cups of the straight-stemmed, many flowering *Ranunculus philonotis* appear to struggle for pre-eminence, we find the tiny spikes of Paul's Betony, *Veronica serpyllifolia*, with thyme-like leaves, and delicately-veined light blue flowers, so different in appearance from the Speedwell group in general, that no cursory inquirer would suppose them to belong to the same order. This little plant was formerly dedicated to the saint whose name it bears, from the belief in its medicinal excellence. The papilionaceous flower in yellow terminal clusters, clinging to other plants in its vicinity by means of its leaf-tendrils, is the Yellow Everlasting Pea, *Lathyrus pratensis*, one of the valuable *Leguminosæ*, a highly interesting order of plants; several of the species under the general name of *pulse*, afford us nutritious food, the substance of leguminous seeds consisting in a great degree of *caseine*, the nitrogenous principle of milk and cheese. Many are valuable in medicine, several are deleterious, and others supply valuable fodder for cattle; the one before us is greatly relished by cows and horses.

Our talk of fields and flowers must end for the present. Did either space or time permit of it, we might wander to the upland heaths, the corn-

fields, and the sea-side, each of which has its own floral inhabitants. But if amongst our many readers this fasciculus of passing comments on the sweet, silent, and sensitive flowers that border our daily paths, as transient gleams of some lost, far-off Eden, lead to a livelier interest in, and a deeper love for them, when the tumultuous city is left behind—common and low, and free for all to gather, yet each a microscopic wonder and a study—we shall have opened up for other minds than our own a source of pleasure so broad, so pure, and compensative, that it will supply the place of missing pleasures and amusements, and like the mystic sympathy of one human heart for another, make even sorrow and bereavement less liable to be felt. Flowers in all ages, have been cultivated by persons of leisure and taste, for the beauty and variety of their forms, colours, and fragrance. While generally healthful and exhilarating, from being pursued in the open air, the culture of flowers is justly considered a pure and refining recreation, which, by leading to the tranquil contemplation of natural beauty, and diverting the mind from gross wordly occupations, has a positively moral, and therefore highly beneficial tendency. It often serves to awaken in previously listless minds a spirit of inquiry respecting the great phenomena of nature, and the laws of vitality, which so vividly exemplify the wisdom, and power, and goodness of the Creator. This innocent recreation, too, has the advantage of being alike open to the prince and the peasant, high and low—the over-toiled man of business and the industrious artizan. It may be followed with equal enjoyment by both sexes, and, as is well known, on every imaginable scale, from that of a single flower-pot or tiny front-plot, to the princely conservatory and exquisitely varied parterre. We would have our readers admire all the beauties with which culture has filled our gardens, and the floral grandeurs with which they are sometimes arrayed. But while they gaze with delight on the gorgeousness of such flowers as the rhododendrons, we would have them listen to the poet's appeal :

> " Dispise not thou the wild flower ! small it seems,
> And of neglected growth, and its light bells
> Hang carelessly on every passing gale ;
> Yet it is finely wrought, and colours there
> Might shame the Tyrian purple ; and it bears
> Marks of a care eternal and divine,
> Duly the dews descend to give it food ;
> The sun revives its drooping, and the showers
> Add to its beauty ; and the airs of heaven
> Are round it for delight."———

2, *Victoria Terrace, Headingley, near Leeds.*

BOTANY OF NEWTOWN, MONTGOMERYSHIRE.

In the month of July, 1866, I went to the above town, more to see a friend than for botanical purposes; but whilst there I wished to see all that was to be seen, therefore during the few hours at my disposal, I endeavoured to look out some of its floral productions, and now send an account of them to the *Naturalist*, to interest, if possible, some portion of its readers.

Newtown is situated about nine miles S.W. from Montgomery; its situation and scenery are delightful, being agreeably interspersed with hills and valleys; no doubt it is a healthy spot. One of the inhabitants, to my amusement, informed me its healthy state was owing to the odour of the factory oil, and not to its bracing air. The chief trade of the town appears to be in worsted, which is or was manufactured in large quantities; however, its trade in this particular is fast declining, owing to their being behind the age, and refusing to employ steam power.

The Botanical rarities I found were, like angels visits, few and far between; better success may await those who have more time at their disposal, as all the plants in any given district, no matter how limited, cannot be seen in one or two days. One plant was noticed in great plenty, this was *Malva moschata*, L.; it lined some of the hedgerows in great profusion, sometimes being intermingled with *Verbascum Thapsus*, L., which was not so common; *Thymus Chamædrys*, Fr., and *Thymus serpyllum*, L., were equally plentiful; they were not observed growing together, and the former, perhaps, was at a greater elevation than the latter. *Euphorbia Cyparissias*, K., I saw near an old church, a little distance from the town. In all the corn fields, in every direction, *Scandix Pecten-veneris*, L., was in abundance; only a few specimens of *Conium maculatum*, L., and *Chenopodium Bonus-Henricus*, L. were observed, and these, as is often the case, near a farm-house. In a bog on one of the hills, *Hypericum elodes*, L., was gathered; perhaps this was not quite at so high an elevation as recorded in the *Cybele* from North Wales. *Sedum reflexum* is well established on old walls in several places. A woody dingle, north of the town, contained *Lysimachia nummularia*, L.; *Betonica officinalis*, L.; *Calamintha clinopodium*, Spen.; *Rosa arvensis*, L., &c, this was the prevailing rose of the district.

Reseda luteola, L., and *Agrimonia Eupatoria*, L., were both plentiful and luxuriant; these, it may be remarked, are not common in Cheshire; a few plants only of *Veronica polita*, Fr., were met with,—it may easily be distinguished from its near relative, *V. arvensis*, L., by its stunted growth, and large blue corolla. The only two interesting Orchidaceous plants seen, were what was supposed to be *Ophrys apifera*, Huds., (not being in flower the species could not be properly determined,) and *Habenaria bifolia*, Br. Some Grasses, when growing in hard clay soil, have a tendency to form bulbs at their roots; under these circumstances *Arrhenatherum avenaceum*, *β bulbosum*, Lind., was not uncommon. *Galium sylvestre*, Poll. occurred sparingly and *Viola lutea*, Huds., plentifully at Llandyssil.

Ferns did not muster very strongly, as might have been expected from the calcareous nature of the soil; amongst others the following were collected, *Asplenium trichomanes*, L., *Polystichum aculeatum*, Roth., and *P. angulare*, Newm.

Meconopsis cambrica Vig., is stated in the *Scientific Tourist* to occur on Craig Cwm Pystill.—R.

NOTES ON NORFOLK ORNITHOLOGY.

By T. E. Gunn.

(From October 31st, to December 31st, 1866.)

Merlin. On the 12th of November, an immature female bird was obtained at Hellesdon, near Norwich. In its stomach were the remains of a small bird (probably one of the *Fringillidæ*,) and some kernels of wheat, doubtless dispersed from the stomach of its prey.

Great Spotted Woodpecker. An adult female shot at Kenninghall, on the 9th of November. The stomach contained a mixture of matter consisting of minute insects and small seeds.

Shorelark. Four specimens of this rather rare species, have been killed in Norfolk recently. A pair of immature birds was shot on the 29th

of November, at Beeston Regis, near Cromer, and passed into my hands for preservation ; the other two (the sexes of which I have not ascertained) were killed on the 1st of December, in the vicinity of Yarmouth. The following are the correct measurements I took of the first mentioned examples :—

	Male.	Female.
Total length, beak to tail (both inclusive,)	$7\frac{5}{8}$ inches.	$7\frac{1}{4}$ inches.
Extended wings to extreme tip of each ...	$13\frac{3}{4}$ „	13 „
Wing from Carpal joint to tip	$4\frac{1}{2}$ „	$4\frac{3}{16}$ „
Bill—tip to base	$\frac{1}{2}$ „	$\frac{3}{8}$ „
Tail	$3\frac{1}{8}$ „	$2\frac{5}{8}$ „

The bill is bluish black, with pale horn colour at base of lower mandible. Iris, dark brown. Forehead, sulphur ; an elongated patch of same colour over the eye, crown of head black ; feathers, margined with pale sulphur ; from the base of bill, passing under the eyes and down the sides of neck, are elongated patches of black ; throat, and bordering the above patches, joining the ends of the stripes over the eyes, is of sulphur ; a broad band of black runs across its chest ; back and wing coverts dark brown, feathers, margined with paler brown ; nape of neck, and smaller wing coverts of a pinkish tint, feathers of latter margined with white ; primaries and secondaries dark brown, tipped and margined with pale brown and white ; tail feathers, black, with the exception of the two centre which are dark brown, deeply margined with paler brown, the outer feather of each side is white on the outer web and tip : breast and under parts, white, flanks yellowish brown, with a streak of dark brown down the centre of each feather. Legs, toes, and claws, dark bluish black. The male bird as will be seen by the above dimensions is the largest, his plumage is also of brighter tints and more decidedly marked than the female. In dissecting their stomachs I found a mixture of small black seeds and grit.

Richard's Pipit. This species being of rare occurrence in Norfolk, as indeed it is in all parts of Europe, the record of the recent capture of an individual in this county, may prove somewhat interesting to the readers of the *Naturalist*. The example alluded to was shot in the vicinity of Yarmouth about the 27th or 28th of December ; it passed into my hands a day or two afterwards for preservation, and thus afforded me ample opportunities of making a few observations of this *rara avis*. This is the fourth instance only of this species that has been known to occur in Norfolk ; the three previous examples were all taken in the same neighbourhood as the above,

during the years 1841-2. Upper mandible of bill, dark brown; lower mandible, pale yellowish brown. Iris, dark brown. Crown of head, nape of neck, surface of back, and upper tail coverts, are of a dull yellowish brown; the centre of the feathers being of a darker brown. Wing feathers, dark brown, margined with yellowish brown. Tail: the outer feather of each side is white, the next are also white, with the shafts dark brown, and a deep margin of the same colour on the inner web of each; the remainder of the feathers are dark brown; the two centre only are slightly edged with dull yellowish white, they are also seven-sixteenths of an inch shorter than the others. Its throat, breast, and the under parts of its body are dull white, inclining to a yellowish brown tinge on the sides of its neck and flanks; the feathers of its breast have a stripe of dark brown down the centre of each; under surface of wings dull yellowish brown. Legs, toes, and claws, pale yellowish brown. On dissection it proved to be a female. Its stomach contained the remains of several small species of coleoptera, which composed the entire contents. I now give the exact measurements I took of the above specimen which I compare with those of the other three Pipits, viz. :—The Rock, Tree, and Meadow Pipits. The specimen of the Rock Pipit from which I take my dimensions is the male bird of the pair that were killed in this neighbourhood on the 7th of March, 1864.

Measurements.	Richards.	Rock.	Tree.	Meadow.
Total length, beak to tail, both included. ...	$8\frac{1}{4}$	$6\frac{1}{2}$	$6\frac{1}{4}$	$5\frac{1}{2}$ inches.
Bill, tip to base, ...	$\frac{5}{8}$	$\frac{2}{3}$	$\frac{1}{2}$	$\frac{1}{2}$,,
Tip to tip of fully extended wings, ...	$12\frac{1}{4}$			,,
Wing, carpal joint to tip, ...	$3\frac{1}{3}$	$3\frac{1}{2}$	$3\frac{3}{8}$	3 ,,
Tail, ...	$3\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{8}$,,
Thigh, ...	$1\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$\frac{7}{8}$,,
Leg, ...	$1\frac{1}{4}$	1	$\frac{7}{8}$	$\frac{3}{4}$,,
Middle toe and claw, ...	$1\frac{1}{4}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{5}{8}$,,
Outer toe and claw, ...	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{1}{2}$,,
Hinder toe and claw, ...	$1\frac{3}{4}$	$\frac{7}{8}$	$\frac{3}{4}$	$\frac{7}{8}$,,
Hinder claw, ...	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$,,

By comparing the length of the above specimen of *Anthus Richardii*, with the measurement of examples as given by Mr. Yarrell, and the Rev. F. O, Morris, in their works on British Birds—they will be found to vary considerably. Mr. Yarrell, gives $6\frac{3}{4}$ inches as the length of a male, see vol. i. p. 400.

The Rev. F. O. Morris, gives the following length of specimens:—6¾, 7¼, 7½, and 8 inches, see vol. II. page 151.

KINGFISHER. The average weight of examples of this species is about 1¼ ounces. I saw an exceedingly fine bird on the 9th of November, that weighed between 1¾ and 2 ounces. In dissecting the stomach of an individual recently killed I found several small pieces of weed intermixed with the other contents, these had probably become entangled with its finny prey and had been swallowed together.

WAXWING.—This beautiful and uncertain visitor occurred in some plenty in Norfolk during the winter season of 1863-4. I then examined sixteen specimens for preservation, which I recorded in *Young England*, vol. III. pages 16 and 62. During the next season I did not hear of the occurrence of a single bird, and only one last season, which I mentioned in my notes in the *Naturalist*, vol. III. page 83. During the present season, they have, however, arrived in great abundance; apparently one vast flock arrived on our coast which by repeated alarms and persecutions have become scattered all over the country, a fact which seems pretty well proved by the numbers that have been slaughtered. They appeared generally in flocks of perhaps a dozen and varying to a hundred individuals or even more. The first examples observed in this county during the present season, was on the 17th of November, and up to this date, December 31st, I have seen and heard of upwards of a hundred specimens that have been captured, and have no doubt that nearly as many more have been killed by persons who are entirely ignorant of their value and either ate or disposed of them by other useless means. I have lately ascertained that several were thrown about as useless, of which I was not acquainted until too late. Out of those captured I have preserved and mounted as many as forty-one individuals that have passed into my hands for preservation, every individual, of which, I have also separately examined and dissected, thus of course affording me excellent opportunities of observing their plumage, food, chief points of distinction in the sexes, and many other interesting details which I will enumerate in the course of my observations. I will now give a list of those I have examined :

No.	Date 1866.	Sex.	Locality.		No. of Wax-tips on wings.	Length. In.	Remarks.
1.	Nov. 19,	Male	St. Faith's	Shot.	7.7	8½	
2.	,, 21,	Female	Worstead	,,	7.7	8¾	Return of margins on primaries.
3.	,, ,,	,,	,,	,,	5.4	7⅞	

No.	Date 1866.	Sex.	Locality.		No. of Wax-tips on wings.	Length. In.	Remarks.
4.	„ 23,	Male	Brancaster	„	7.7	$8\frac{1}{2}$	Wax tips, large.
5.	„ 26,	Male	Rollesby	„	4.4	$7\frac{5}{8}$	
6.	„ „	„	Wroxham	„	7.7	$8\frac{1}{8}$	
7.	„ 27,	Female	Cromer	„	6.6	$7\frac{1}{2}$	Return of margins on primaries.
8.	„ „	Male	Beeston Regis	„	7.6	$8\frac{1}{4}$	
9.	„ 27,	„	„	„	6.6	$8\frac{1}{8}$	
10.	„ „	Female	„	„	3.3	8	Wax tips very small.
11.	„ „	Male	„	„	7.7	$8\frac{3}{8}$	
12.	„ „	Female	„	„	6.6	$8\frac{1}{4}$	Return of margins on tips of primaries.
13.	„ 28,	Male	Weston	„	6.6	8	Return of margins on tips of primaries.
14.	„ „	„	Beeston	„	5.4	$8\frac{3}{8}$	
15.	„ „	Female	„	„	5.5	$7\frac{3}{4}$	Wax tips very small.
16.	„ 29,	„	Trunch	„	4.4	$8\frac{3}{8}$	Wax tips small.
17.	„ „	Male	Burgh St. Peter,	„	6.5	$8\frac{1}{4}$	
18.	„ „	Female	„	„	4.4	8	Wax tips small and much worn.
19.	„ 30,	„	Beeston Regis	„	3.3	$7\frac{7}{8}$	Wax tips small.
20.	„ „	„	„	„	6.6	$7\frac{7}{8}$	Wax tips very small.
21.	„ „	Male	„	„	7.7	$8\frac{1}{2}$	Wax tips large.
22.	„ „	„	„	„	7.6	$8\frac{3}{4}$	Wax tips large, except the inner one on each wing.
23.	„ „	Female	„	„	5.4	$8\frac{3}{8}$	Wax tips small.
24.	„ „	Male	Weston	„	6.5	$8\frac{1}{2}$	The sixth Wax tip on former wing very small and thin.
25.	„ „	„	Brancaster	„	6.6	$8\frac{1}{2}$	
26.	Dec. 1,	„	Holt	„	6.5	$8\frac{1}{2}$	
27.	„ „	„	Sherringham	„	4.3	$8\frac{3}{4}$	Return of the yellow tips on primaries, the outer edge of tip, white.
28.	„ 3,	„	Rollesby	„	6.6	$8\frac{1}{2}$	Wax tips very large, return of yellow on primaries, and deep white margin.

No.	Date 1866.	Sex.	Locallty.		No. of Wax tips on wings.	Length. In.	Remarks.
29.	„	„ Female	„	„	4.4	$8\frac{1}{4}$	Wax tips small.
30.	„	„	„	„	5.5	$8\frac{1}{4}$	„ „
31.	„	4,	„ Barford	„	4.4	$8\frac{1}{8}$	Wax tips very small.
32.	„	8, Male	Heigham	„	4.4	$8\frac{1}{4}$	Side mark on tips of primaries, yellow.
33.	„	„	„ Horstead	„	7.7	$8\frac{3}{8}$	„ „
34.	„	„ Female	„	„	4.4	$8\frac{1}{2}$	Tips small. Side markings on primaries straw yellow.
35.	„	10, Male	Cottishall	„	6.6	$8\frac{1}{8}$	Side markings on tips of primaries straw yellow.
36.	„	15, Female	Worstead	„	8.8	$8\frac{3}{8}$	Tips large, excepting inner one on each wing, return of margins on primaries.
37.	„	18, Male	Near Yarmouth	„	7.7	9	„ „
38.	„	„ Female	„	„	6.5	$8\frac{1}{2}$	One tip shot off later wing.
39.	„	27, Male	Kirby Cane	„	6.6	$8\frac{3}{4}$	Tips large, return of margins on primaries.
40.	„	„ Female	Rollesby	„	6.6	$8\frac{1}{4}$	Tips, small, slight indications of a 7th on the inner feather of each wing.
41.	„	„	„	„	5.5	$8\frac{3}{8}$	Tips small.

By the above list it will be observed that the average length of each bird, (from beak to tail both inclusive) is about $8\frac{3}{8}$ inches, only one appears to attain the length of 9 inches, the shortest one is $7\frac{1}{2}$ inches. The females generally speaking are the smaller birds, but I have already shown exceptions to this rule—the length of some of the females exceeding the average of the males in several cases. I thought it quite unnecessary to give the other measurements of each bird, as it would only occupy too much space and prove of little interest. In the wing from the carpal joint to tip, specimens measure from $4\frac{1}{4}$ to $4\frac{3}{8}$ inches, and from 14 to 15 inches in expanse of wings to extreme tip of each ; tail generally about 3 inches. The average weight

of each bird is about $2\frac{1}{2}$ ounces; the female shot at Worstead, on the 15th of December, was exceedingly fat, and weighed just 3 ounces. Bill, nearly black, with pale brown edges at base; straight and slightly hooked at tip of upper mandible, and measures from tip to base $\frac{7}{8}$ of an inch, and at the base (underneath) it is $\frac{3}{8}$ of an inch across. Mr. Yarrell, states the colour of the eye as red, other authors pronounce it dark brown—both assertions appear correct. In my wholesale examination I found those of the immature birds to be hazel or dark brown, which attain a reddish hue in adults; immature specimens have however passed under my notice, in which the colour of the eyes has assumed a reddish tint, but these in every instance upon close examination I found to be caused by their being shot in the head or other vital parts, the overflow of blood thereby discolouring them.

(To be continued.)

NOTES ON THE NESTS AND EGGS OF BRITISH BIRDS.

By Henry L. Saxby, M.D.

Sparrowhawk, *Falco nisus.* Of four eggs taken from a nest near Shanklin, Isle of Wight, some years ago, three are coloured in the usual manner, but the fourth, which was the last one laid is perfectly white with the exception of a few pale brownish dots upon one side.

Redbacked Shrike, *Lanius collurio.* This species will return annually to the same locality, often to the very same bush for the purpose of nidification. Upon one occasion I knew it repair a nest which had been used during the previous season, but this occurred in a sheltered spot where the storms of winter had not caused their ordinary amount of damage. Usually the new structure is placed within a few feet of the former one, but the old materials are not used, probably on account of their pliancy having become destroyed by exposure to the weather.

The eggs vary considerably both in colour and size. Some observers attempt to account for the difference in colour by the supposition that those eggs of the reddish variety are the produce of the older birds, but my own

observations do not tend to confirm this view. I knew a pair of redbacked shrikes which nested in the same clump of bushes during four successive summers—how many they had resorted to it previously I cannot say. The eggs were invariably five in number. Those of the first set had the ground colour of a bluish tint, in the second set it was creamy white, in the third of a still warmer hue, and in the fourth bluish like the first. In all the spots were as usual bluish gray and rusty brown of several shades. The beautiful red variety so admirably figured in Mr. Hewitson's work has occurred to my notice more frequently in Merionethshire than elsewhere. Eggs belonging to the same nest sometimes present astounding differences as to size and also in the character of the marking; more than once I have seen the zone of spots upon the small end of the egg.

The male feeds the female not only while she is upon the eggs, but also whilst the nest is in course of construction; sometimes he brings her butterflies, now and then a large bee, but most commonly beetles.

In 1855, I discovered a nest and five eggs in a low thorn bush, and was not a little surprised to observe that both birds were in the plumage of adult males.

A nest found at Bonchurch, Isle of Wight, in 1832, had about one hundred and forty dry skins of small hairy caterpillars adhering to all parts of he exterior.

Spotted Flycatcher, *Muscicapa grisola.* I have had several opportunities of observing that the spotted flycatcher rears two broods in a season. Sometimes the second set of eggs is deposited without any further preparation of the nest, but more frequently a slight addition is made to the lining. I have known this bird return in summer to a nest constructed during the previous season, but this does not appear to be an unusual circumstance. So far as I can ascertain, incubation lasts about fifteen days, during the whole of which period the male keeps the female well supplied with food, not bringing each insect separately, unless it happen to be a large one, but waiting until a considerable number have been collected.

When the site fixed upon for the nest is near a house the builders often avail themselves largely of the sweepings of carpets, the shakings of mats, &c., consequently pieces of twine and silk, and small shreds of muslin are very frequently observed in the walls of the nest. I have remarked that when scraps of Berlin wool are used, a decided preference is shown for *sober* colours—a preference similar to that exhibited by Nature in the plumage of the bird itself.

Pied Flycatcher, *Muscicapa atricapilla.* I once knew a pair of these birds build in one of the holes of a pigeon box, fastened upon the wall of a house at the height of about twenty feet from the ground. For some days before the nest was commenced, the male, readily distinguishable by the pure black and white of his plumage, might constantly be seen peering into the holes and crevices of the neighbouring walls, occasionally entering one and remaining there as long as a half a minute or more. In Belgium where this species is far more common in the summer months, I have usually found the nest in a small hollow in the trunk of a tree, once it was discovered in the deserted nest of a green woodpecker, and once in a decayed beech log, not more than eight inches above the ground.

Missel Thrush, *Turdus viscivorous,* A nest of this bird was found by me in a very unusual situation, viz: upon an old nest of a woodpigeon at the height of twenty six feet from the ground in a tall slender fir tree. I watched it almost from its commencement until two eggs had been laid when it was destroyed by some mischievous boys.

Song Thrush, *Turdus musicus.* Some years ago, having discovered the nest of a song thrush, and witnessed one of the birds at work—so there can be no doubt as to its species—I left the spot for several days, only returning about the time that the first egg was supposed to have been laid. Great was my astonishment on making the discovery that during the interval a neat layer of small pieces of green moss had been recently securely and evenly spread over the still moist layer of mud within. Five eggs of the usual size and colour were afterwards deposited. The nest was placed among thorns and brambles about eighteen inches from the ground. It was in watching this nest that I first became aware of the fact that the lining of the song thrush's nest is smoothed and rounded by means of a peculiar shuffling movement of the breast of the bird.

I have found as many as seven eggs in the nest of the song thrush, but it is scarcely probable that the whole were the produce of one bird, this instance having occurred in a copse where the species was exceedingly abundant.

Among the numerous varieties of the egg which have come under my notice, some have been spotters and others more streaked than spotted, so as to resemble Mr. Morris's figure of the egg of White's thrush.

Blackbird, *Turdus merula.* Low down in a thorn hedge I once found a blackbird's nest composed entirely of fibrous roots, coarse upon the outside, but almost as fine as hairs inside of all. The peculiarity was

easily accounted for by the fact that although the foot of the hedge which formed one boundary of a kitchen garden, a new bed had just been dug upon which the above materials were so abundant that the birds had no occasion to seek for others.

Among my notes I find record of two instances in which the nest was placed upon the ground among tall weeds, and one in which it was situated among the branches of a *Laurustinus* within four feet of that of a song thrush. I also remember finding one among some ivy upon the support of a verandah.

Hedgesparrow, *Accentor modularis*. The following is a short history of a hedgesparrow's nest discovered on the 18th April, 1855, among some ivy upon the wall of my father's house. On that day it contained two eggs of the well known greenish blue colour. Late in the evening of the 19th a third was added, and a fourth still later on the 20th, when the female began to sit. At that time her extreme shyness caused me to fear she would desert, for every person entering the house almost brushed against the very leaves beneath which the nest was concealed. Gradually, however, she became more accustomed to these frequent interruptions, and by the fourth day would remain upon a twig within arms reach while I placed bread crumbs upon the nest, coming down and eating them in my presence as soon as I retired a few paces from the spot. On the 25th the eggs underwent a considerable change in appearance; they lost their former gloss and brilliancy and rapidly became darker. On the evening of the 3rd May, the fourteenth day of incubation, my attention was directed to the nest by observing one of the birds carrying away a piece of egg shell in its bill and then I discovered the first young one. A little more than an hour afterwards the remaining three were hatched and the shells had disappeared; and although I kept a constant watch from the window, from that time until nearly dark I did not see any food carried to the nest. Twenty-four hours later the nestlings had greatly increased in size. They had a tuft of dark grayish down above each eye, and two larger than these upon the back. On the 4th one of the nestlings died and was carried away soon afterwards, but unfortunately I did not witness the act of removal. On the 9th the eyes of the remaining three began to open and the feathers, especially those of the wings and tail were growing rapidly. On the 17th, just a month from the commencement of laying, I found the young brood in the path beneath the nest. The parents seemed very anxious to lead them away to some place of safety, and kept flitting to and fro, now alighting upon the ground among them, now upon the neighbouring bushes,

and constantly uttering a low cheeping cry which was evidently far better understood than all other methods of enticement. From the peculiarity of their movements there could be no doubt that they had some particular place of refuge in view, and so the result proved, for in little more than half an hour, after frequent stopping and panting for breath, and an occasional fluttering of their yet imperfectly formed wings, the young birds reached a clump of evergreens, the drooping branches of which perfectly screened them from view. There they remained during the rest of the day, the parent birds constantly bringing them supplies of food, only desisting when the approaching darkness prevented them from seeking more. When I peeped through the bushes soon afterwards, the old birds were sitting among the branches, while the three young ones were crouching close together upon the ground. For several weeks the whole family remained about the garden after which time they became scattered and I gradually lost sight of them. I am not sure whether the male took part in the task of incubation ; if he did it must have been at night, when it was impossible for me to distinguish the brighter colours of his plumage.

I have twice known the hedgesparrow cover its eggs with moss, and it is not a little remarkable that upon each occasion the act immediately preceded a sudden change of weather. The first instance occurred as follows :— Early in the spring of 1852, I found a newly finished nest in a low thorn hedge. About a week afterwards I revisited it in the expectation of finding eggs, but seeing it filled with moss intermixed with a small quantity of wool, I did not meddle with it, feeling sure that the village boys had taken the eggs and torn out the lining of the nest. This was at about five o'clock in the afternoon, the weather being at that time mild and calm. Soon after sunset, however, a smart breeze rose from N.N.E., sleet began to fall, and by midnight the thermometer had gone down to 37° Fahr. All the next day the bad weather continued, and on passing the nest I still saw it in the same state as on the previous evening. During the second night the wind changed and on the following morning the sky became clear, and the weather was nearly as warm as before. About ten o'clock, a.m., while searching the hedge for some new prize, I was astonished to find that the nest contained three eggs, and that not a bit of the moss and wool with which it had so lately been filled was anywhere in sight. At first it must be confessed I suspected a trick upon the part of my old enemies the boys ; it was therefore no small satisfaction afterwards to see the bird sitting upon four eggs, with every prospect of rearing a brood, but alas ! one morning when I turned

aside to take my accustomed look at her, she was gone, and the scattered fragments of the nest told me too plainly that one even more pitiless than the cold wind had been there.

A second instance of the kind occurred some years later. During a run of fine spring weather a hedgesparrow built a nest among some ivy, upon the wall of a house. On the day that the second egg was laid I found the nest completely filled with moss, and soon afterwards the weather became very cold, the rain fell heavily all night, and when the sky cleared about noon, all the moss had disappeared. A third egg was laid next evening and in due time a brood was hatched, but I never again found moss within the nest.

Among my notes I find an account of a young meadow pipit, which was reared by a pair of hedgesparrows among their own brood where I placed it one evening, after it had been turned out of its own nest by a cuckoo.

Robin Redbreast, *Sylvia rubecula*. It is well known that this species will rear two broods in a season, and also that the male will build more nests than required for use, but during a pretty extensive experience of the robin and its ways, I have only once met with an instance of a pair of these birds being engaged with more than a single one at a time. This of itself was very unusual, yet, when I state that not satisfied with this deviation from their ordinary habits they abandoned the first two and immediately constructed two more, and that eggs were deposited in all four, doubts as to the accuracy of my observations may so naturally arise that it becomes necessary to enter somewhat minutely into details in order that the reader may judge for himself.

The first two nests were discovered by me on the 13th April, 1855, under the eaves of a stable roof about twenty feet from the ground. They were within two feet of each other and both were in an equal state of forwardness, being nearly ready for lining. Having concealed myself among some shrubs, I soon became convinced that they both belonged to one pair of birds. From the 13th to the 20th they continued to work steadily ; then they ceased for awhile ; and on the 28th, on my going up to see what was the matter I found five eggs in the nest upon the left hand side, the one upon the right hand being still unfinished. The female sat steadily until the 5th May, when she left the eggs and for several days was constantly to be seen carrying building materials to the other nest, on visiting which late in the evening of the 14th, I found her sitting on six eggs. The nest was then perfectly finished, but the one upon the left hand side was pulled almost to pieces, and a large quantity of moss and hair had disappeared; the

eggs, however, were safe but quite cold. I observed that the eggs of the second set were rather smaller and more sparingly coloured than those of the first set. On the 15th the second nest was deserted, possibly owing to my interference; even when I visited it at eleven o'clock at night, the eggs were still cold. On the 16th and 17th, I made the two following entries in my note book:—

"May 16th.—Under the verandah there is a small pigeon box containing only two compartments, and in both of these one pair of robins are building. This is the second instance of the kind which has come under my notice lately. I cannot be mistaken, for I several times observed one of the birds fly out of either the right or the left compartment, disappear in a neighbouring hedge, and soon return with a leaf or bit of moss to the one at which it had *not* been working last."

"May 17th.—The robins have been hard at work most of the day at both nests in the pigeon box. One of the birds went into the right hand nest under the eaves of the stable and remained there so long that I took a ladder and went to see what the unaccountable little creature was about. I suppose he heard me coming, for when I was nearly half-way up, it flew, trailing in its bill a long piece of hay, with which after dodging among the bushes for a few minutes, it flew into one of the holes of the pigeon box, thus pretty clearly proving that all four nests are the property of one pair of birds. The eggs were quite warm."

The robins worked hard at the new nests until the 21st, when, without any apparent reason, they discontinued their employment until the 24th, from which date they resumed it at uncertain intervals until the 11th June, when the first egg was deposited in the left nest. Another was added on the 14th, but no more. The nest was at that time perfectly finished and very carefully lined, but the other one was so imperfect that when the first egg appeared on the 12th, it was lying upon the bare board. The second egg of that nest was laid on the 13th, a third on the 15th and the fourth and last on the 16th. On the morning of that day, the female sat upon the four eggs in the right compartment, and in the afternoon upon the two in the left. For several days she changed from nest to nest, and then at length sat steadily upon the four, which was still lying upon the hard board at the bottom of the nest, but in consequence of the frequent changes of temperature they had undergone three were addled. The one young bird—all the parents had to show for their seventeen eggs and four nests, was carefully fed, and three weeks after it was hatched, it was able to wander about the garden, but for many

days afterwards it did not procure any of its own food—at least I supposed so from the frequency with which the old ones brought it supplies.

Blackcap, *Sylvia atricapilla.* The nest of the blackcap is so slightly made, that under favourable circumstances, not more than five or six days are occupied in its construction. It is usually composed of fine roots and stalks of plants, the materials being finer towards the inside which nearly always contains a few long horsehairs. I have seldom seen the nest without a few cocoons of spiders or tufts of wool upon the outside. The male assists in the duty of incubation but is far less patient than the female, seldom remaining upon the eggs more than two hours at a time.

(To be continued.)

NOTES ON NORFOLK ORNITHOLOGY.

By T. E. Gunn.

(From October 31st, to December 31st, 1866.)

(*Continued from page* 166)

The colour of the forehead is reddish chesnut, crown of head light reddish brown, the feathers elongated forming a crest, the longest feathers measuring one and five-eighths inches in length ; over the base of the upper mandible, round the eyes, and reaching around its head, is an elongated circle of black ; nape of neck light reddish brown, darker on its back, scapulars, and upper wing coverts ; primaries black with elongated patches of yellow at the ends of the outer webs, which are returned around the tips in some specimens, and then assume a white margin along the whole tip either more or less in width according to age ; the secondaries are dull purple brown, tipped with pure white on the outer webs ; the tips of these feathers terminate in an oblong appendage somewhat resembling in colour red sealing wax. These tips Mr. Yarrell observes as being flat, but on close examination they prove to be of a rounded surface, somewhat similar to the human finger-nail, their underneath surface is pink ; in some examples they measure as much as three-eighths of an inch in length and one-eighth of an inch in width,

this is of course only in adult specimens; the number and size are bestowed on birds according to age or sex; the young birds have none during the first year according to Mr. Yarrell's observations in his work on British Birds; most authors state that the female has never more than five in each wing, I have, however, shown in my list several instances to the contrary,—for example the female with eight in each, shot at Worstead. Specimens occasionally have odd numbers of tips, owing either to their being knocked or rubbed, sometimes shot off. Primary coverts, black tipped with white. From the base of bill and extending over the whole surface of the throat, is black. At the angle of the mouth the feathers are chesnut, assuming a pale reddish brown on the cheeks, neck, breast, and under parts, inclining to a greyish brown tinge on its flanks and abdomen; base of tail feathers and upper tail covert, smoky grey; the former black at the ends and tipped with yellow; under surface of wings, ashy grey; under tail coverts, chestnut brown. The plumage of both sexes are precisely similar, that of the male is somewhat brighter in colour than the female, the yellow tips of the primaries and tail of the latter are duller, and less in width than the males, the wax-tips are also smaller and generally less in number. The most prominent point of distinction in the sexes, according to my observations is the black patch of the throat, which is of a deep and glossy hue in the male, and in the female dull and tinged with greyish brown, and not extending so far down the throat as in the male. In the tail of the Weston bird No. 13, two of the tips of the feathers ended in a small wax appendage resembling those of its wings, and all that portion of the quill passing through the yellow border of all the feathers is of a reddish tinge. This is all doubtless a certain proof of old age and strong healthy birds, Legs, toes, and claws, black.

In order to render my notes as complete and interesting as possible, I will now give a list of the occurrence of the other specimens, and all the information I am able to gather respecting them, from various sources, some few of which I have seen but not particularly examined.

No.	Date, 1866.	Sex,	Locality.	No. of Wax-tips on wings.	Remarks.
1	Nov. 17,		Old Buckenham		Seen by the Rev. T. Fulcher.
2	„ „		Thetford, Shot		Particulars not ascertained.
3 to 7	„		Repps, near Yarmouth		Five seen, three out of which were shot.

No.	Date, 1866.	Sex.	Locality.	No. of Wax-tips on wings.	Remarks.
8	„ 21,	Male	Castle Woodrow		Shot.
9	„ „	Female	do.		do.
10 to 14	24,		Gorlestone Marshes		Five shot, recorded in the *Field*.
15	„ 27,	Male	Northrepps		
16	„ „		do.		
17	„ „		do.		
18	„ 30,		Cossey		Badly shot, *immature bird*. apparently a female.
19	Dec, 1,	Male	Florden, shot	5.4	
20	„ „	Male	do.	5.4	
21	„ „	Female	Hickling		Immature, shot by Mr. Nudd.
22	„ „	Female	do.		do.
23	„ „		Lakenham		Shot, particulars not ascertained.
24	„ „		do.		do.
25 to 27	2,		Yarmouth		Three shot in gardens north end of the town.
28 to 30	„		Caistor near Yarmouth		Three shot, particulars not ascertained.
31 to 35	3,		Gorlestone, nr. Yarmouth		Five shot, particulars not ascertained.
36 to 39	5,		Hickling		Four shot by Mr. Nudd.
40	„ 6,	Male	Needham, shot	8.8	Tips large. Return of margins on primaries.
41	„ 7,	Male	Beeston, shot	6.6	Return of margins on tips of primaries.
42	„ 8,		Not ascertained, shot		A poor specimen.
43 to 45	10,		Southtown, Yarmouth		Three shot by Mr. Rust, in his ship-building yard, recorded in *People's Weekly Journal*.
46	„ 11,	Male	Wells	7.7	Shot.
47	„ „	Female	Holkham	6.6	Slight return of margins on tips of primaries.
48	„ 12,	Male	Haynford	7.3	
49	„ „	Female	do.	5.4	
50	„ 13,	Male	Horstead	7.7	Yellow returns on tips of primaries.

No.	Date, 1866.	Sex.	Locality.	No. of Wax-tips on wings.	Remarks.
51	„ „	Male	do.	5.6	Return of margins on tips of primaries.
52	„ „	Male	do.[1]	5.4	
53 to 68	15,		Near Wells		A flock seen. Sixteen birds counted on one tree, about a dozen of which were shot.
69 to 70	29,		Fresingland		Two shot by Mr. Rush. Recorded in *People's Weekly Journal.*
71	„ 22,		Yarmouth	5.5	
72	„ „	Female	St. Faith's	4.4	
73	„ 24,	Male	Rainthorpe	8.7	The eighth wax-tips on fromer wing very slight. Return of margins on tips of primaries. That part of the quill passing through yellow border of tail, tinged with red.
74			Briston	8.7	Shot by Rev. C. Norris, and recorded in *People's Weekly Journal.*

It will be seen by these reports that examples have been seen or captured in no less than thirty-six different localities, thus shewing the wide distribution of these persecuted little strangers in this county.

I had the pleasure of observing a flock of about a dozen birds on the 2nd of December, at Swardestone, which is about three miles distant from Norwich; they were perched on the hedge and the branches of a tree that adjoined the roadside, and were contentedly regaling themselves with the berries the hedge produced, or pruning and dressing their plumage. I took up a good position, and was much interested in watching their actions, unfortunately my pleasuse was of short duration; the noise of an approaching vehicle quickly dispersing these interesting objects. When watching or listening they sit very upright with the crest slightly raised, and silently moving the head on either side; if startled by a noise, or approaching danger, the crest is raised to the fullest extent and spreading their wings they take flight; when pecking their food, the crest is but partly raised, the body curved as in the manner of the *Paridæ*, or Titmice, which they much resemble in their

actions. When excited or enraged with each other the crest is raised to the fullest extent, the wings outspread and dropped, and mouth open; in this position they shew their beautiful plumage, their brilliant waxlike tips and the yellow ladder-like markings of their wings to the best advantage. The flight is somewhat similar to that of the Starling, *Sturnus vulgaris*, with the undulating movement so peculiar to that species.

The food of this species consists of the berries of the *Guelder Rose*, *Dog Rose*, *Whitethorn*, and *Privet*, and in no one instance (of all the dissections I made) have I found the food to differ; the berries of the *Dog Rose* being apparently too large for one mouthful, they peck them to pieces, the other berries they swallow whole; they appear very gregarious over their food, all those I examined were very fat, in some cases their bodies being completely encased with that substance, sometimes as much as a quarter of an inch in thickness. In the throats of many of them I found as many as five, six, and even seven large berries, besides having their stomachs crammed out to the fullest extent. Nearly all species of birds are supplied with pebbles or grit, either large or small in proportion to their size or requirements, to act as grindstones in assisting to digest the food; in the case of the waxwings, however, I found they were deficient of those articles, the kernels or stones of the berries apparently acting as substitutes, they are expelled with the other matter that is not required when sufficient nutriment is derived for the support of nature; thus these birds have a fresh set of grindstones for each meal.

Golden Plover. A pair of these birds in our Fishmarket of the 21st December.

Heron. In dissecting an example of the common heron, I found its stomach to contain the remains of a frog, partly decomposed, a smaller one quite entire, part of an eel, some aquatic insects, and two balls or pellets, one of the latter measured two and a quarter inches in diameter, the other was much smaller; they were composed of the fur of the water rat or vole and a muddy substance, apparently cemented with the gelatinous matter of the frog into a compact mass.

Knot. I saw four brace of these birds exposed for sale in our Fishmarket, on the 28th of December.

Purple Sandpiper. A female of this species was shot on the 31st of December, on Breydon Water, Yarmouth. The beak is black at the tip assuming a pale orange colour at the base. All the upper parts of the plumage are of a deep purple hue, feathers of the back and upper wing coverts, edged with

greyish purple, those of the wings edged with white, excepting the first three primaries; shafts of primaries, white; throat, and around base of bill greyish brown; assuming a light purple on the neck and chest, the feathers of the latter, and those of the flanks bordered with white; abdomen, white, legs and toes, pale orange; claws, black; the ovary was full of minute eggs. Contents of stomach, young shrimps, small aquatic shells, and a few small stones. The following are the dimensions :—

Bill.....	$1\frac{1}{3}$ inches.	Extent of wings.....	16 inches.
Total length..	$9\frac{1}{4}$ „	Wing (carpal joint).....	$5\frac{3}{8}$ „
		Tail.....	$2\frac{3}{4}$ inches.

Oystercatcher. December 28th. Two adults in the market.

Little Auk. A male was picked up dead on the sea beach at Bacton, on the 18th of November, apparently in a starved and exhausted condition.

Black Guillemot. During the middle of November last, I saw the breast and wings of a bird that was shot at Wells, a short time previously, which before being sufficiently identified was cut up as ornaments for ladies' hats, in which state I saw the above parts. I believe it to be an immature bird of the Black Guillemot, which is of rare occurrence on our coast.

Great Northern Diver. On the 5th of December, an immature bird was shot at Burgh St. Peter, near Yarmouth. About the same time I am informed a small party of these birds were observed off the north coast, and an immature female (probably one of their number) was shot on the 12th of the same month at Salthouse. The following are the measurements of the above :—

	Male.	Female.
Beak to tail (both included)	$32\frac{1}{2}$ inches.	29 inches.
Tip to tip of wings (fully extended) ...	5 feet.	4 ft. 4 inches.
Wing from carpal joint to tip	15 inches.	$13\frac{1}{2}$ inches.
Bill, upper mandible.....	$4\frac{3}{4}$ „	$4\frac{1}{8}$ „
„ lower mandible.....	$4\frac{5}{8}$ „	4 „
Middle toe	5 „	$4\frac{5}{8}$ „

The stomach of the male contained a few fragments of fish bones and some large sized flat stones. In the throat of the female I found as many as seven young of the *Plaice*, that measured each on an averarge $4\frac{1}{2}$ inches, three had their heads nearly bitten through, the others were quite perfect; I found in its stomach three examples of the *Viviparous Blenny*, the longest one measuring six and a half inches in length, the other two much smaller; they were in a decomposed state and mixed with the remains of another plaice or two.

VARIETY.

PARTRIDGE. A beautiful variety of this bird was shot on the 15th of November, at Southwood, by Mr. Darby ; the whole of its plumage was of a cream colour, mottled with small patches of pale chesnut brown, the pale chesnut brown patch of its face and throat was the same as in ordinary specimens. I exhibited this bird at a meeting of the Norwich Naturalists' Society. See *Naturalist* vol. iii, page 136.

3, *West Pottergate, Norwich.*

WILD PLANTS AT WOODGREEN, LONDON, N.

BY G. MUNBY.

I am glad to observe from time to time in the *Naturalist*, the mention of localities of plants in the neighbourhood of London, as from the increase of house building the records of their localities will soon be historical facts. I have not visited Hampstead Heath for a great many years, but I should not fancy it exactly the place to make a botanical excursion to, how much-soever I might be tempted by the habitats of rare plants, given by Ray in his Synopsis. The day is gone by when Mr. Doody invited Ray to his garden in the Strand, to observe the *Cup-mushrome* growing, or when these old gentlemen were used to take a stroll, to enrich their herbaria, with plants found at Chelsea or Chiswick. Nor shall we, I hope, ever see again an abundant crop of *Sisymbrium Irio*, growing near London Bridge, as it did after the great fire of London. I myself, found in the Seven Sisters' road at Holloway, the *Œnanthe Phellandrium*, only three years ago, and I suppose the locality is already covered with modern semi-detached villas. I am induced to record at Woodgreen, and its neighbourhood, the existence of the following species, which I hope may be interesting to some of your botanical readers, not perhaps from their rarity, but rather from their having been hitherto passed over, and from their poor chance of keeping a footing in this suburb of London, which will very shortly possess nothing but the name of its original title ; the " wood," only exists in tradition, and the " green" is fast disappearing under the accumulation of bricks and mortar, and the rapacity of encroaching landlords enclosing the common lands which constituted the " Green Lanes," of former times.

One species of plant which is interesting both from its rarity and also from the beauty of its flowers is *Lathyrus Nissolia*, Crimson vetching, or grass vetch, which I found sparingly at the south entrance to the railway tunnel between Woodgreen and Colney Hatch. Ray says in 1696, that it is "not rarely," found on the borders of fields, but only gives one locality, namely, Newcastle-on-Tyne. Morison who wrote in 1680, also observes of this plant that it grows (passive) everywhere in corn fields and on banks. Sir James Smith in 1820, simply gives its locality "in bushy plains, and the grassy borders of fields," but Babington in 1847, says, "grassy places, rare." It is not uncommon in France, Germany, and Spain, and has been found also in the Eastern provinces of Algeria.

Carex pseudo-Cyperus, L. I have found this plant on the borders of a small pond at Bound's green between Woodgreen and Colney Hatch, about two hundred yards from the high road on the right hand side going northward. Morison, who gives a very poor figure of this plant, says, that it is found in the counties of Warwick, Berks, and Essex. Ray calls it "Bastard Cyperus with short pendulous spikes," but does not give any particular locality. Smith says, that it is not uncommon, but only gives two habitats, namely Hounslow Heath on the authority of the Bishop of Carlisle, and St. Faith's bog near Norwich. Babington gives, "damp places, rare." This species is found nearly all over Europe, and also in Algeria, and as might be supposed, also in North America. Wood in his Class Book of Botany, published in New York, in 1861, enumerates one hundred and eighty-six species of *Carex*, whilst Babington only describes seventy species of the same found in England. Gray in his Natural arrangement of British Plants gives the inharmonious name of *Trasus chlorostachaes*, to this species, limiting the genus *Carex* to those species only, which bear androgynous spikes ; whilst Palisot de Beauvois constructed his genus *Vignea* out of the species bearing digynous spikes, and filling up the genus *Carex* with those which have their female spikes furnished with three styles. When a genus of plants contains nearly two hundred species, it is no doubt convenient to divide them into certain categories, but when the genus is so natural as that of *Carex*, an subdivision of it cannot be anything more than artificial.

Mentha gracilis, Smith. *M. pratensis*, Sole. I found this plant in flower in the month of September on the banks of the river Lea, near Sewardstone. This plant was also known to Ray, who calls it "Red mint," but gives no locality for it ; it is the *Mentha gentilis* of English Botany, vol. 7. t. 449. This difficult genus *Mentha*, contains many more species than are

generally awarded to it, or which are included in recent Botanical works, under the title of varieties. M. Timbal-Lagrave, of Toulouse, who has had many opportunities of studying the numerous kinds of mint in France from living specimens, has published a very interesting account of the different species of this genus found in his neighbourhood. Of the nine species of mint described in Koch's Synopsis Floræ Germanicæ, six of them have numerous varieties, *Mentha sativa*, alone having six varieties recorded. This wholesale method of disposing of plants, coupled with the hybridising theory, is to say the least a very slovenly method of doing business.

Mercurialis ambigua, L. fil. I have found this plant very sparingly near the Reservoir, or filtering beds of the New River Company, between Woodgreen and Hornsey. This species was separated from *Mercurialis annua*, by Linnæus' son, and although not recognised by Sir J. Smith, nor yet by Koch, I hold it to be a distinct and immutable species, known not only by the male and female flowers being intermixed, but by the marking of the seeds. There are figures of both species in Lyte's Herbal, published in 1578, p. 76, as well as in Morison's Histor. Plant. Oxon. 1680, and the majority of botanical writers of the present day admit this plant as specifically distinct from *M. annua*. Ray calls it, "French Mercury," and states that it grows plentifully on the "Sea beach near Ryde in the Isle of Wight," so that from the locality, which appears to have been verified by Dr. Bromfield in the present century, we may suppose that *M. ambigua*, was meant although Ray does not, differing from Morison his contemporary, appear to recognize more than one species.

Crepis virens, L. This plant grows commonly on the banks of the railway at Woodgreen: Babington seems to have been the first author in Britain who recognised it, as Sir J. Smith confounded it with the *Crepis Tectorum*, L., which although common enough in France and the continent of Europe, has not yet been found in Britain. The synonyms quoted by Smith from the old authors, as well as the figure of Morison, v. 3. sect. 7. pl. 7. f. 29., would be as applicable to the one species as to the other.

Carex divulsa, Good. I have found this plant associated with *Carex sylvatica*, at the south entrance of the railway tunnel between Woodgreen and Colney Hatch; it was regarded as a variety of *C. muricata*, by Wahlenberg, in which opinion Sir W. Hooker seems to have concurred, as well as Cosson and Germain in the Flore Parisienne; but Reichenbach, Sir J. Smith, Koch, and most other modern authors have followed Goodenough's distinction. It is common in France, especially in the southern parts; also in Spain and

Algeria, and I believe generally in Europe. Barrelier gives a very fair representation of it in his Icones Plantarum, pl. 20. Ray also gives a good description of it in his Synopsis 2nd edition, p. 269, under the name of "the lesser spiked grass with a long interrupted ear."

Hypericum tretrapterum, Fries. This plant is not uncommon by the sides of ditches at Woodgreen. I follow the opinion of Koch and other continental writers, in referring this species to the denomination of Fries, in opposition to Sir J. Smith, and Mr. Babington, who refer it to *H. quadrangulum*, of Linnæus, which last named plant I conceive to be identical with *H. dubium*, of Leers' Flora Herbornensis, p. 169, and is found generally in in mountainous districts, and near Geneva reaches the height of several thousand feet, as the top of the Jura, &c.

Sison Amomum, L. Common in hedge bottoms.

Œgopodium Podagraria, L. Road side, near Alderman Sidney's house.

Anemone nemorosa, L. Colney Hatch railway tunnel.

Scilla nutans, L. Common under hedges about Woodgreen. There are few plants which have been more bandied about from genus to genus than the species under consideration. There is no valid reason for changing the old Linnæan name of *Hyacinthus non-scriptus*, except by making a genus specially for it, as Dumortier has done by calling it *Endymion*, or Link, by giving it the name of *Agraphis*. It certainly has not got the patent starlike perigone of the genus *Scilla*, but it has the campanulate perigone of *Hyacinthus*. This plant was called in Ray's time (end of the 18th century,) Harebells, which name the *Campanula rotundifolia*, or Bluebells of Scotland, seems to have usurped at the present day. It is common almost all over the continent of Europe, and has been found once in Algeria at the height of 3000 feet.

Sparganium simplex, Huds. *S. ramosum*, L., var. β. This plant is found sparingly in the old cut of the New River, being able with great difficulty to obtain a place on account of the *Anacharis Alsinastrum*, or American pond weed, which actually dries up the water to such an extent that perch are found lying dead by dozens in the summer months.

Malva moschata, L. This very pretty little flower is not uncommon by the roadsides. There are doubtless other interesting plants in the neighbourhood, but my short sojourn at Woodgreen has not enabled me so far to detect any other species worthy of observation.

Lawn Villas, Woodgreen, November, 1865.

Reports of Societies.

Queckett Microscopical Club.

The monthly meeting was held at the University College, on the 22nd instant, Ernest Hart, Esq., President in the chair. A paper was read by Mr. C. A. Watkins, on "Yeast and other Ferments." The matter was treated broadly and the author explained the similarity of the chemical operations of all Ferments whether they be living organisms as Yeast, or substances derived from organic sources, as Albumen, Casein, Diastase, etc., and urged the necessity of considering these operations together, rather than separating them into those which are the results of organic growth, and those which appear to be simply chemical actions. In describing the Viscous, Lactic, and Butyric acid fermentations, and also the ordinary conversion of Alcohol into vinegar, he called attention to the universal appearance of the minute Bacteria, and Vibriones which accompany these changes, and invited Microscopists to the study of these low forms of life, that some light may be thrown on the relation they evidently bear to the various phases of decay of organic products generally.

Ten members were elected and the proceedings terminated with a Conversazione.

High Wycombe Natural History Society

Second Winter Session, 1866-7.

Fourth Conversazione, Feb. 5th.—Held, by kind permission, at the house of the late R. Wheeler, Esq. Tea and coffee were kindly provided, after which the various objects exhibited were inspected. Among these were a collection of Minerals lent by the President; two or three Wild Plants in blossom; a tray of fossils, the property of Mr. E. Wheeler; local Wild Fowers (*Umbelliferæ* and *Geraniaceæ*) lent by Miss Chandler; and several illustrated works on various branches of Natural History. Robert Holland, Esq., of Mobberley, Cheshire, had forwarded to the Secretary a very interesting paper "On some resemblances between Plants and Animals," which was much appreciated by the members; a short summary of it will appear in No. 4, of the Society's Magazine. After an interval for conversation, the Secretary read a few remarks on the necessity for more active work by the members generally during the coming season; after which the President's microscope occupied the remainder of the evening.

Fifth Conversazione, Feb. 26th.—Held at the house of the President, at his special invitation. This meeting was very largely attended, upwards of thirtv members and friends being present. A paper by W. G. Smith, Esq., of London, "On Toadstools," was read by the Secretary: the author dilated on the instruction and pleasure derivable from a close study of Fungi, proceeding to explain the structure and development of various members of this marvellous class. The objects exhibited were very numerous; among them were various bones, shown by the President, including those of the Indian Elephant, the African Wart-Hog (*Phacochœrus Æthiopicus*), and the Boar; also a tooth of *Elephas primogenius*, found at Deptford. The Rev. W. H. Painter exhibited several trays of Fossils, from the Upper Greensand at Teignmouth, Devon, and from the Chalk at Freshwater, I. of Wight. Two fasciculi of dried Wild Flowers, *Caryophyllaceæ* and *Compositæ*, were lent by Miss Chandler. The Secretary exhibited specimens (in blossom) of the following plants: *Helleborus viridis, Viola hirta, Primula*

vulgaris, *P. veris*, &c. A somewhat novel feature was the exhibition by the President, in small saucers, of various inhabitants of our stream, in a living state; including Water Spiders (*Hydrachna*), *Planorbis spirorbis*, *Physa fontinalis*, and *Paludina similis*; various species of the *Phryganidæ*, in their curious dwellings; and the fresh-water *Oniscus*. The Rev. W. H. Painter then gave a brief address, descriptive of his recent visit to the interesting caves in the Carboniferous Limestone, in the vicinity of Ingleborough, Yorkshire, after which the meeting terminated.

Sixth Canversazione, March 5th. Held (by kind permission) at the house of T. Wheeler, Esq. The first paper was by Mr. Ullyett, on "The Pleasures of Moth Hunting," which appears in No. 4, of the Society's Quarterly Magazine. An interesting geological paper, by Evan Hopkins, Esq., which had been previously read before the Victoria Institute, was then read by T. Wheeler, Esq., and gave rise to some discussion. The objects exhibited comprised:—Dried Wild Flowers; Microscopic objects; African Elephant bones; Chalk Fossils; and living Wild plants in blossom; with many other interesting specimens. The evening concluded with an address "On the Mouths of Insects," by the President; which was copiously illustrated by the aid of diagrams, coloured drawings, and the microscope.

Perthshire Natural Science Society.—The first ordinary meeting of this society was held in Perth, on the evening of March 7th, the president in the chair. Mr. John Dawson, exhibited some early flowering plants which he had collected, among which were, *Petasites albus*? which is naturalised near Perth, *Potentilla Fragariastrum*, *Viola hirta*, (in bud) *Mercurialis perennis*, *Lamium purpureum*, etc. The president then gave an inaugural address, stating the objects for which the society was formed and the richness of the Fauna and Flora of the county, and urging on the members to energy in the pursuit of Natural History. Naturalists wishing to become corresponding members of the society, should address the secretary, Mr. Stewart, 28, St. John-street, Perth.

Observations.

Rare Birds in Leadenhall Market.—On the 16th of November, I was fortunate enough to obtain an adult male specimen of the Spotted Crake, *Crex porzana*, in good preservation, and on the 7th of December, I purchased a Temminck's Stint, *Tringa Temminckii*, both of which are in my collection.—JOHN BURRELL, Leytonstone, N.E.

Grey Parrot.—A person in this neighbourhood possesses a grey parrot which produced three eggs last week, two of which were laid from the perch and are consequently broken slightly; but the other I have in my possession, perfect—they are about the size of the Ring Dove, *Columba palumbus*, but rather more oval, in shape. Last winter just before Christmas the bird also laid three eggs. The owner informs me that this parrot has been in his possession fifteen years. Thinking these facts might be interesting to some of your readers. I have taken the liberty of forwarding them to you.—JOHN BURRELL, Leytonstone, N.E.

JAN 1886